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THIS PROJECT ANALYZED PERSONALITY CHANGES IN COLLEGE WOMEN AS MEASURED BY A DISCHRONIC SERIES OF TEST BATTERIES. THE OBJECTIVE WAS TO DETERMINE THOSE CHANGES WHICH HAVE TAKEN PLACE IN THE PERSONALITY DEVELOPMENT, ATTITUDES, VALUES, AND OPINIONS OF AN EXTENSIVELY TESTED SAMPLE OF COLLEGE WOMEN. SIX GRADUATING SENIOR CLASSES AND SIX ENTERING FRESHMEN CLASSES, AS WELL AS TWO SAMPLES OF JUNIORS, SOPHOMORES, AND SECOND SEMESTER FRESHMEN AT VASSAR COLLEGE, WERE GIVEN A COMPLETE BATTERY OF PSYCHOLOGICAL TESTS AND WERE INTERVIEWED IN DEPTH. THE PRESENT RESEARCH ANALYZED THESE EXISTING DATA IN TERMS OF PERSONALITY CHANGES WHICH OCCURRED DURING THE COLLEGE YEARS, CHARACTERISTICS OF SPECIAL GROUPS (SUCH AS THOSE WHO LEFT COLLEGE AND THOSE WHO VISTED THE COLLEGE PSYCHIATRISTS). RELATIONSHIPS BETWEEN INTERVIEW DATA AND SUCH VARIABLES AS FACULTY RATINGS, GRADES, CHOICE OF MAJOR, POST-COLLEGE PLANS, AND THE EFFECT OF INTERVIEWING ON THE SAMPLE. THE VASSAR ATTITUDE INVENTORY (VAI) WAS DEVELOPED AND A FACTOR ANALYSIS STUDY OF THESE SCALES WAS USED. THERE WAS NO EVIDENCE THAT LARGE-SCALE SHIFTS IN ATTITUDES OR IDEOLOGY OCCUR IN THE EARLY YEARS AFTER GRADUATION. ALUMNAE AS COMPARED TO THE SENIORS WERE MORE STABLE EMOTIONALLY AND MORE ASSURED SOCIALLY, LESS ANXIOUS AND DEPRESSED, AND GENERALLY MORE CONFIDENT AND IMPERTURABLE. (GC)

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Measurement and Evaluation of Change in College Women

Final Report

Mellon Foundation
Vassar College
Poughkeepsie, New York

Mervin B. Freedman, Coordinator

August 31, 1961

The research reported herein was performed pursuant to a contract with the United States Office of Education, Department of Health, Education, and Welfare.

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Contract Number 736(8410)

Final Report

I. Identification:
Institution—Vassar College
Project Director—Mervin B. Freedman
Title—Measurement and Evaluation of Change in College Women
Period Covered by Report—September 1, 1959—August 31, 1961

II. Problem: As of September 1, 1961 the Mellon Foundation at Vassar College had been collecting personality test and interview data on Vassar College students and alumnae for six years. While the data had already been subjected to considerable analysis, the bulk of the analytic work remained to be done. Support from the Office of Education was requested for the purpose of obtaining help with the analytic and statistical activities that were called for.

The "Vassar Test Battery" has been administered to six entering freshman classes and graduating senior classes. In the case of three of the classes the same people were tested both as seniors and freshmen. In addition, random samples of juniors, sophomores, and freshmen in their second semester were tested in order to shed light on the timing of change in college.

The Vassar Test Battery consisted of the Minnesota Multiphasic Personality Inventory, selected scales of the California Psychological Inventory, various items devised by the Mellon Staff, the California Ethnocentrism and Authoritarianism Scales, an autobiographical questionnaire, and some non-verbal material.

The main interview endeavor consisted in seeing one fifth of the Class of 1958, originally 80 students, in periodic interviews throughout their four-year stay at Vassar. Total number of interview hours averaged about 30 per student. The interviews covered such matters as relationships in the family, scholastic history prior to college entrance, reasons for attending college, discussion of experiences, attitude changes, and the like while at Vassar College, and plans for the post-college future. In addition to interviews of this special sample, sociometric ratings by fellow students and ratings by members of the Vassar teaching faculty and administration were obtained.

Other kinds of studies were also carried out. Among these were interview and test studies of Vassar alumnae of various periods going back as far as the Class of 1904, test and questionnaire studies of the members of the Class of 1958 (N = 150) who withdrew from Vassar before graduation, and test and interview studies of students selected not at random but on the basis of the patterning of their test scores

III. Objectives: The Office of Education was requested to help support studies designed to answer the following questions or illuminate the following issues.

Differences between seniors and freshmen on various measures, for example, Minnesota Multiphasic Personality Inventory, California Psychological Inventory, Authoritarianism, and scales devised by the Mellon Foundation staff which are described in the attached test manual.

Tests of juniors, sophomores, and freshmen in the second semester which will shed light on the timing of changes in college.

Characteristics of students who withdrew from college in different years before graduation.

Comparison of members of the Class of 1958 who withdrew before graduation with the graduates of the Class of 1958. The students who withdrew may be divided into various groups for purposes of further analysis, for example, those who continued their college education versus those who did not, or those who left school for marriage versus unmarried subjects.

Characteristics of majors in different fields. The differential effects on personality development of majoring in one subject or field of concentration versus another.

Attitudes, values, and opinions of college women as determined by intensive interviewing. Some of the areas covered are attitudes toward career and marriage, women's roles, the family and patterns of child rearing, political participation, and religion.

Academic and other experiences during the college years as revealed by interviewing. Matters such as the origins of interests and intellectual commitment are illuminated as well as the converse, that is, academic dissatisfaction and disinterest.

Personality development in late adolescence in women as revealed by quantitative material and depth-psychological interviews.

How intellectual and academic performances relate to factors in the life history and in the current personality structure.

IV. Related Research: In recent years a number of studies of college populations have been carried out. Many of these are summarized in Philip Jacob's book, Changing Values in College (1957). Most of these studies center on but one test or variable, however, for example, changes in authoritarianism or in scores on the Allport-Vernon test of values, and do not involve interviewing or studies of complex interrelationships among many variables as does the research of the Mellon Foundation.

In the past several years the Center for the Study of Higher Education at the University of California has been conducting studies of college students at a number of institutions. The emphasis, however, has been on comparisons between institutions rather than detailed study of the development of students at any one institution.

Theodore Newcomb's book, Personality and Social Change: Attitude Formation in a Student Community (1943), describes a comprehensive and systematic survey of student climate of opinion and its influence on attitude formation but gives little attention to details of individual personality development. Works such as Edward D. Eddy's The College Influence on Student Character (1959) contain many valuable insights into the characteristics of college cultures and student environments but lack sufficient quantitative or systematic information to support assertions or observations that are made.

Psychosocial Problems of College Men (1958), edited by Bryant Wedge, contains accounts of studies that are based on highly complex sociological and psychological theory. The representativeness of the sampling is often an unknown factor, however Thus, many of the contributions are based on students who have utilized the psychiatric clinic of the student health service. The extent to which these students resemble students who have not utilized psychotherapeutic aid is an imponderable. The Mellon Foundation quantitative studies, on the other hand, are based on almost

100% returns from all classes studied, and the chief interview sample consisted of one fifth of the class of 1958, chosen at random.

V. Studies Carried Out:

A. Development of the Vassar Attitude Inventory

The Vassar Attitude Inventory (VAI) was developed in order to provide answers to several questions about the Vassar College student population. Although it may have emerged as an instrument having more general usefulness in personality and attitude assessment and applicable to a variety of student populations, the VAI is still best understood in the light of those original questions. They may be summarized as follows:

(1) What changes do Vassar students undergo in authoritarianism during their four years of college?
(2) What changes do they undergo in readiness to recognize, express, or act out impulses?
(3) What changes take place with respect to sex-role identification? (Stated more baldly, do students become more masculine or more feminine in attitudes as they go through college?)
(4) What are the attitudes that most sharply distinguish seniors from freshmen at Vassar?

From these questions it may be seen, first of all, why the construction of new scales was indicated. No measure of impulse expression, needed for answering the second question, was in existence. The fourth question clearly called for development of an instrument specific to the Vassar population. Existing measures of sex-role identification were tried out and found to be lacking in reliability for Vassar students.

These questions also make it easier to see why certain approaches to scale construction were chosen in preference to others. For instance, one method of scale construction that enjoys considerable favor is that of selecting criterion groups known to differ in the trait to be measured and selecting items that discriminate between the groups. Although this approach is potentially applicable in almost any situation, it was practical only in constructing a scale to answer the fourth question, since only for that purpose were clearly and objectively defined criterion groups (freshmen and seniors) immediately available. Factor analysis provides another useful approach to scale construction, but test batteries derived from factor analysis serve different ends from those sought in the present battery. The characteristics measured by factor-analytically derived scales are, in a sense, "discovered" by the factor analysis itself. Scales so obtained may have wide usefulness, but there is no assurance that they will lend themselves nicely to the investigation of particular substantive questions such as those listed above. Indeed, it will be clear to readers familiar with Cattell's writings on the factor analytic study of personality that the above questions are phrased in terms of what Cattell calls "surface traits" rather than the "source traits" with which factor analysis is concerned (Cattell, 1957).

Rather than committing themselves to any single all-encompassing approach to scale construction, the investigators chose to use in each instance whatever method promised to lead most directly to a scale that would provide an objective answer to the question under investigation. This could have led to the development of a set of completely separate instruments, but in the interests of economy and continuity, it was decided instead to develop all the scales out of a single large pool of items sufficiently varied in content that all potentially relevant areas of personality and attitudes would be touched upon. This pool consisted of 677 verbal items, consisting of items from the Minnesota Multiphasic Personality Inventory, the California Psychological Inventory, and the Maslow Scale of Dominance Feeling in Women. All items were of the true-false type, that is items to which the subject responded "true-false," "agree-disagree," or "yes-no."

In the following sections the scales making up the VAI are discussed in turn, with attention being given to the method of scale development and the content of the scales. To avoid burdensome details, it may be stated that the final form of each scale was the result of items analyses (the nature of which will be reported below) carried out on at least two different samples of Vassar College students with no sample numbering fewer than 197 students. In several cases this minimum specification of cross-validation was greatly exceeded. The first four scales to be treated are those designed to provide answers to the four questions stated at the beginning of this section. Following this are three scales that were subsequently developed for reasons to be given.

Social Maturity. In seeking to study authoritarian attitudes in Vassar students, the investigators were fortunate in having available an existing instrument that proved to give highly reliable scores for Vassar students, the F scale of the California Public Opinion Survey (Adorno, et al., 1950). For several reasons, however, it seemed advisable to develop another scale of authoritarianism out of the VAI item pool. Besides the obvious administrative advantages that such a scale would offer, it was desired to have (1) a scale of greater length and diversity of item content, as a means of exploring in more detail the components that make up the authoritarian syndrome, (2) a scale that focussed on those aspects of authoritarianism that were especially discriminating among Vassar College students, and (3) a scale that reflected the psychological rather than the ideological aspects of authoritarianism. This last characteristic was assured by the nature of the VAI item pool, since it was made up of items from personality inventories and contained few items having ideological content.

The Social Maturity scale was developed simply by selecting those items that correlated significantly with scores on the California F-scale in both of two samples of freshmen. The 149 items meeting this requirement were scored in the direction opposite to that of their correlation with the F-scale, so that Social Maturity may be said to represent the negative pole of authoritarianism. The vagueness of the title and its generality reflect the indefiniteness with which the opposite pole of authoritarianism is conceived. The correlation of Social Maturity with F exceeded -.74 in both samples. Correcting for attenuation, Social Maturity and F have something better than 70% of their true-score variance in common. Inspection of the items of the SM-scale shows them to be consistent with the original theory of the authoritarian personality. However, several facets of the authoritarian syndrome are absent from the SM-scale. These are Power, Toughness, Superstition, and Sex (that is, projected sexuality). Also, of course, the SM-scale lacks the plainly ideological content that is involved in authoritarianism as it was originally conceived. These discrepancies are no doubt partly a function of the limitations of the item pool but they may also indicate that certain features of authoritarianism are not manifested by the authoritarians who are found among middle and upper-middle class college women. These discrepancies are small enough, however, and the correlation between SM and F is high enough, that it appears proper to regard the SM-scale as suitable for its intended purpose, namely, to provide a measure of authoritarianism as manifested by personality test item responses. The following kinds of items (a sample item from each category is provided) contribute to low scores on Social Maturity:

(1) Compulsiveness. "I always see to it that my work is carefully planned and organized."
(2) Punitive Morality. "I am in favor of a very strict enforcement of all laws no matter what the consequences."
(3) Authoritarian Submission. "One of my aims in life is to accomplish something that would make my mother proud of me."
(4) Conventionality. "I think I am stricter about right and wrong than most people."
(5) Religious Fundamentalism. "I feel sure that there is only one true religion."
(6) Anti-Intraception. "A strong person doesn't show his emotions and feelings."
(7) Ego-Alien-Symptomatology. "I almost never blush." (scored false)
(8) Lack of Self-confidence. "Even the idea of giving a talk in public makes me afraid."
(9) Projectivity. "I am bothered by people outside on streetcars, stores, etc., watching me."
(10) Cynicism. "I don't blame anyone for trying to grab all he can get in this world."
(11) Romanticism. "In most ways the poor man is better off than the rich man."
(12) Circumscribed aggression. "I must admit that I enjoy playing practical jokes on people."
(13) Sense of Victimization. "Teachers often expect too much work from the students."

Impulse Expression. As Webster, et al. (1962) show, the concept of impulse expression, meaning openness to and readiness to seek gratification of commonly repressed wishes, is a central one in the writers' theory of personality development during the college years. Although the relevant behaviors are touched upon by numerous personality tests, there was no available scale aimed directly at the assessment of impulse expression. The Impulsivity scale of the California Psychological Inventory was, at the time of the development of the VAI, in an unnamed experimental form. This scale appears to be quite similar in content to the scale to be described in this section, having, in fact, 16 items in common with it. That these independently constructed scales, one derived rationally and the other derived empirically, should have turned out so similar is in itself substantial support for the theory that posits such a trait.

The Impulse Expression scale was developed by first setting up as a criterion a rationally scored scale composed of items which were relevant to impulse expression. These included items whose content pertained to such characteristics as impulsiveness, irrepressibility, assertiveness, adventurousness, aggressiveness, rebelliousness, restlessness, excitability, and unconventionality. Seventy-nine items of this kind were chosen to make up the initial criterion scale. Starting with the correlations of items in the pool with this 79-item scale, item analyses designed to maximize item homogeneity were carried out on several classes of seniors and freshmen until a 123-item test having KR-21 reliability of approximately .90 was obtained. Later a 124-item version of the scale was developed, using eight newly rewritten items in place of seven items of the previous scale that were duplicates of other items. Results presented in the text, however, are, unless otherwise indicated, based on the earlier 123-item scale. On the basis of content, the items in the final version of the scale could be classified into four clusters which are illustrated as follows:

(1) Ascendance. "When I work on a committee I like to take charge of things." "I have often either broken rules, school club, etc., or inwardly rebelled against them." "I go out of my way to meet troubles rather than try to escape them."
(2) Sensation. "I like to talk about sex." "When I get bored I like to stir up some excitement." "I get excited very easily."
(3) Endocathection and Intraception. "I have very peculiar and strange experiences." "I think I take primarily an aesthetic view of experience." "Some of my friends think that my ideas are impractical if not a bit wild."
(4) Radical Sentiments. "We cannot know for sure whether or not there is a god." "Politically I am something of a radical." "I believe women ought to have as much sexual freedom as men."

Developmental Status. As results reported elsewhere show, Social Maturity and Impulse Expression proved to be two variables on which students did show marked changes during the course of their college education. It was desired, however, to have a more objective index of change during college, one which was not based on any preconceptions about the kind of content that was relevant. Such a scale, it was believed, would provide valuable comparisons with the content of more rationally derived scales. It might indicate previously unnoticed kinds of personality change. The basic procedure used was simply that of identifying all the items in the pool of 677 items that discriminated between freshmen and sophomores at the .05 level of significance in three different samples of students, one of them a longitudinal sample. One hundred twenty-three items stood up under this rather rigorous cross-validation and could therefore be considered as fairly stable indicators of change. These items formed a scale with a KR-20 reliability of .84. In order to obtain a more homogeneous scale, however, factor analysis was used to isolate a first-factor scale of 72 items having a KR-21 reliability of .88. Although the original set of 123 items might have been expected to be factorially complex, no factor other than the first factor could be located. This factor, which thus forms the basis of the Developmental Status scale, was identified as "rebellious independence." Some of the items which showed the greatest differences between freshmen and seniors are the following, all of them, as it happens, being answered more frequently "false" by seniors:

"I would rather be a steady and dependable worker than a brilliant but unstable one."
"I would disapprove of anyone's drinking to the point of intoxication at a party."
"In the final analysis parents generally turn out to be right about things."
"I should like to belong to several clubs or lodges."
"I dislike women who disregard the usual social or moral conventions."
"For most questions there is just one right answer once a person is able to get all the facts."

Masculinity-Femininity. Scales for assessing masculinity versus femininity are typically developed from items that distinguish males from females or from items that distinguish normal members of a single sex from those showing gross inversions in sexual identity. It is to be expected that scales of either kind will be much less discriminating when used on a normal single-sexed population, and results at Vassar fully bore out this expectation.

In an effort to obtain a more discriminating instrument, items from three existing masculinity-femininity scales (The MMPI Masculinity-Femininity scale, the CPI Femininity scale, and 80 MMPI items found by Drake to distinguish the sexes in a large college population) were combined to form a single large scale that was used as the initial criterion for item selection. Results of the item analyses were disappointing, the final 96-item scale having a KR-21 reliability only in the .60s. The items, however, seemed to fall into three clusters, and when these clusters were separated out rationally, two of them proved to have reliabilities greater than that of the full scale. The first cluster, labelled Preference for Masculine Role, consisted of 18 items having a KR-21 reliability of .43. All items were concerned with preference for traditional masculine roles and the rejection of traditional feminine ones. Examples:

"I think I would like the work of a building contractor."
"I think I would like the work of a dress designer." (scored false)
"I have never been sorry that I am a girl." (scored false)

The second cluster, called Lack of Feminine Passivity, contained 42 items, having a KR-21 reliability of .69. Items pertained to physical aggressiveness, dominance, determination, stubbornness, criticism, manipulativeness, and lack of modesty, traditional morality, sense of order, and physical fears. Examples:

"I like to go to parties and other affairs where there is lots of loud fun."
"I have had times where I had to be rough with people who were rude or annoying."
"I am very careful about my manner of dress." (scored false)

The third cluster, called Lack of Feminine Sensitivity, contained 32 items and had a KR-21 reliability of .70. Items in this cluster expressed generally a lack of typically feminine emotionality, conflict, phantasy, sensitivity, introspection, neurosis, and aesthetic interests. Examples:

"My feelings are not easily hurt."
"I get excited very easily." (scored false)
"I like poetry." (scored false)

Although, considering their length, the last two scales represented a considerable gain in reliability over the original MF-scale, it is also clear that their content is already covered in other scales. Only the first cluster, the shortest and least reliable of the sub-scales, contains content specifically pertaining to sex-role identification. Further discussion of the MF-scale is deferred to the section on validation studies.

The above four scales constitute the core and the raison d'etre of the VAI. Of the remaining three scales to be described, the first, Dominance and Confidence, was developed to measure a personality trait which, though of secondary interest theoretically, appeared to be readily accessible to measurement with the existing item. The final two scales were developed as validity scales, scores on which would, it was hoped, enhance the interpretability of scores on the basic scales, although as will be seen the scales appear to measure personality characteristics of considerable interest in their own right.

Dominance and Confidence. Among the unused items remaining in the item pool after the preceding scales had been developed was a relatively large cluster of items having as a common theme expressions of confidence, imperturbability, and leadership-ability within groups or in other social situations. Three staff members independently selected items expressing this theme, a task which proved easy. The 77 items on which there was unanimous agreement were used as the initial criterion test. After one item analysis using a random sample of 225 freshmen a scale was obtained having a KR-21 reliability of .92. An additional item analysis, carried out on a random sample of 192 seniors, resulted in a final scale of 92 items which had a reliability of about .90. In the freshman sample 23 items, expressing a denial or rejection of various psychopathological or symptom complaint items, had contributed to the homogeneity of the scale, but item analysis using the senior sample led to the elimination of these items, because not enough high scoring seniors rejected them. The resulting scale therefore had content that was exclusively concerned with matters of confidence and dominance, with almost no pathological components. Although the main theme of dominance and confidence is evident in all the items it may be broken down into the following sub-themes:

(1) Assertiveness. "When I work on a committee I like to take charge of things."

(2) Optimism. "I usually expect to succeed in the things I do."

(3) Sense of general competence. "I seem to be about as capable and smart as most other people around me."

(4) Independence. "In nearly all situations I like making up my own mind."

(5) Decisiveness. "I am quick to make the ordinary decisions of everyday life."

(6) Freedom from fears, especially with regard to social interactions. "I have no dread of going into a room by myself where other people have already gathered and are talking."

Social Integration. Each of the five scales described above is distinguished by a certain kind of item content. The remaining two scales to be described were designed to measure response tendencies that were more or less independent of the content of the items. As it turned out, however, item content does play an important role in the two scales and, in fact, although the scales were constructed on quite different bases, the content of the two scales is highly similar.

The tendency to give deviant responses has been the object of much recent study. The work of Berg and his associates has shown the tendency to have great generality. Regardless of the particular kinds of items used the same people seem to give deviant or unpopular responses. The Social Integration Scale was developed according to methods which have become standard for measuring this tendency. Out of the original pool of items all items were selected which showed very strong popular trends. Items with means in the range .06 to .34 or in the range .66 to .94 were chosen to comprise the initial criterion test, all items being scored in the popular direction. The criterion scale thus consists of items, regardless of content, which a large majority, but not quite all, students answered in the same way. A high score thus indicates a tendency to go along with the majority on item responses. A low score shows a tendency to deviate from or disagree with the majority of students on items in the pool. In its method of construction the Social Integration Scale resembles the MMPI F-scale and it was originally intended that the scale should be used after the manner of the F-scale as a validity indicator, that is, extremely high or low scores would be taken as indicating that the student's responses on other scales were of dubious validity, a high score indicating a tendency to give highly acceptable popular responses and thus to give a spuriously good impression, low scores indicating a tendency to give either an exaggerated bad impression or a tendency to answer items carelessly. As is true of the MMPI F-scale, however, the content of the scale proved to be far from miscellaneous and irrelevant.

The general theme of all the items is a Pollyanna-ish one, that "everything is just fine with me and with the world." The largest percentage of the items involve avowals of good psychological health and freedom from troubles and symptoms: "Most of the time I feel happy." "Most nights I go to sleep without thoughts or ideas bothering me." Easy sociability is expressed by items like, "I am a good mixer." A number of items paint a rosy picture of home life: "My home life was always happy." Combined with this are items expressing a strong commitment to the safe and middle-road, a denial that there exists even a temptation to deviate: "Some of my friends think that my ideas are impractical, if not a bit wild" (scored false) and "At times I have a strong urge to do something harmful or shocking" (scored false). Finally there is a denial of any sort of negative feeling, hostility, envy, or suspicion towards others: "It makes me feel like a failure when I hear of the success of someone I know well" (scored false). "I commonly wonder what hidden reason another person may have for doing something nice for me" (scored false).

Repression and Suppression. The tendency of some people to give predominantly positive or predominantly negative responses has been shown by a number of investigators to account for a large portion of the variance on personality scales, particularly when items are scored dichotomously, as in the VAI. The Repression and Suppression scale was designed to provide a measure of this tendency. Following the procedure outlined by Fricke, the initial criterion scale was made up of items having means in the middle range, that is, items on which about as many people gave positive responses as gave negative responses. The initial criterion scale so obtained consisted of 105 items, all scored in the same direction, having a KR-21 reliability of .91. It was found, however, that this scale correlated .91 with a scale called feminine sensitivity. This was a 110-item scale with a KR-21 reliability of .90 composed of MF-items and their correlates, a scale that had been used for exploring the area covered by the third MF cluster described above. It was easy to see why the correlation was so high. A third of the items in the two scales were common items and both scales were saturated with acquiescence, that is, feminine sensitivity had only 18 items answered false. Rather than attempt to effect a separation between two scales that were so similar, it was decided to pool the common items of the two scales to form a new initial criterion scale. Item analyses were therefore carried out on the basis of this new criterion, resulting in a substantial increase in reliability. The final scale consisted of 157 items having a KR-21 reliability of .93. All but seven of the items were scored false. As was mentioned earlier the resulting scale proved to be very similar in content to Social Integration. The two scales correlated .84 and had 42 items in common. What has been said of the content of Social Integration applies equally well to the content of the Repression and Suppression scale. Several elements appear in the Repression and Suppression scale which are not so evident in the Social Integration scale, however. First of all, as might be expected from its method of construction, the Repression and Suppression scale emphasizes denial of negative attributes rather than avowal of positive ones. This is made strikingly clear when the few items that are scored true are inspected. For without exception they are items phrased in such a way that agreement with them constitutes a denial of some negative attribute. Examples: "I do not tire quickly." "I daydream very little." "It does not bother me that I am not better looking."

Along with this is an aspect that also characterizes the MMPI K-scale, to which the Repression and Suppression scale is quite similar, the denial of attributes or behaviors which an ordinary person could not with complete honesty deny. Examples: "I do not always tell the truth," and "At periods my mind seems to work more slowly than usual." Finally there is one substantive component that appears in the Repression and Suppression scale that is not so evident in Social Integration. This is the denial of any desire to be unusually dominant or conspicuous. Examples are the denial of items like the following: "I like to be the center of attention," "When I work on a committee, I like to take charge of things," "I like to boast about my achievements every now and then." It is thus apparent that, in both Social Integration and Repression and Suppression, response tendencies are closely linked with item content. Not only does the person high on Social Integration refrain from making deviant responses, she also manifests this tendency most clearly on items relating to deviant behavior. Not only does Repression and Suppression reflect a tendency to deny attributes, it reflects the tendency to deny attributes that are unfavorable or negative in character. Attempts to separate the response tendency or set from item content will be reported in the section on validity studies.

B. A Factor Analytic Study
of the Vassar College Attitude Inventory Scales

A preliminary factor analysis of the seven VAI scales with an early version of the Stereotype Rejection scale (to be described below) yielded three factors. The first of these was determined by positive loadings on RS, SI, and DC and by negative loadings on IE and DS; the second by positive loadings on DS, SM, and Stereotype Rejection; the third by a positive loading on DC. These factors were tentatively identified as Freedom from Psychological Disturbance, Liberalism of Attitudes, and Social Confidence. This analysis, however, was inconclusive in several respects:

(1) Although the three factors accounted for virtually all the estimated true score variance of SM, DS, SI, and RS, they left appreciable portions of the variance of IE, DC, AND MF unaccounted for. MF, in particular, was very poorly described by the factors, there being no factors to which it was clearly related.

(2) It was suspected that the large amount of item-overlap and the resulting high correlation between SI and RS might have seriously distorted the results; that is, a factor principally determined by these two variables was bound to emerge, and did indeed emerge as the factor accounting for the largest amount of the common factor variance, and this probably spurious factor would distort all the other factors in such a small analysis.

(3) Because the analysis was essentially an internal one, it could not add to knowledge of what was being measured by the VAI scales but could only clarify the relationships between components already identified. Several questions about the content of the battery thus remained unanswered:

a. To what extent do the items associated with the first factor indicate real psychopathology and to what extent do they indicate only an awareness of and a willingness to report psychological difficulties?

b. To what extent do the social attitude items reveal a genuine liberal (i.e., humanistic, democratic) orientation and to what extent do they reveal merely sophistication, loss of childish illusions, and the like?

c. To what extent do the items dealing with social relations indicate differences in adequacy of social adjustment (e.g., confidence and poise versus anxiety, ineffectiveness, or inability to form satisfying interpersonal relationships) as against simple differences in degree of interest in social activity?

As a step toward resolving these difficulties, a larger factor analysis was undertaken, designed according to the following desiderata:

(1) Additional variables should be included which might be correlated with IE, DC, AND MF, thus giving them more common factor variance.

(2) Extensive item-overlap among scales should be eliminated as far as possible by judicious selection of variables.

(3) Variables should be introduced whose loadings on the factors would help resolve the questions raised in (3) above.

Variables and Hypotheses

The first eight variables are VAI scales.

(1) Dominance and Confidence
(2) Social Integration
(3) Impulse Expression
(4) Developmental Status
(5) Social Maturity

It was believed that the unsatisfactory description of the MF scale in the preliminary analysis might have been due to the heterogeneity of the scale: three distinct and relatively more homogeneous components had previously been sorted out. Accordingly, it was decided to use separate scores on these three components rather than a single MF score. If these three variables appeared with loadings in the same direction on a factor, an MF effect could be inferred; otherwise the separate components would be interpreted. The three subscales were scored in the feminine direction.

(6) MF I (preference for traditional feminine role)
(7) MF II (feminine passivity)
(8) MF III (feminine sensitivity)

Because the RS scale had extensive item overlap with both SI and MF III, the desideratum of reasonably independent measures demanded that either RS be eliminated from the analysis or else that the other two scales be eliminated. Although the RS scale is probably of greater interest than either of the other two scales, an inspection of the matrix of intercorrelations indicated that more information would be lost if SI and MF III were rejected than if RS were rejected. (The pattern of correlations of SI and RS with the other variables were, in fact, so similar that there could be little doubt that wherever one was located in the factor space the other would be also.)

The remaining nine variables were drawn from available data to test hypotheses about the content of the VAI scales listed above. Variables 9, 10, and 11 were chosen to clarify the meaning of the liberalism dimension previously identified. If, as content analysis of the DS scale has suggested, liberalism as shown on the Vassar scales is closely associated with rebellious independence, then the following variable should have a positive loading on the liberalism dimension:

(9) Rebellion Against Parental Authority. A four-item scale derived from responses on a Biographical Data blank. Ss were asked to check those adjectives from a list of 15 that described the dominant attitude of each parent to her. One point was given for checking (for either parent or both) each of the following adjectives: "Oversolicitous," "Domineering," "Possessive," and "Nagging."

Liberalism of an ideological sort, it was hypothesized, should be manifested in liberal political and religious preferences.

(10) Liberalism. A two-item scale derived from responses on the Biographical Data blank. One point was given for listing political preference as "Democrat" or "Liberal" or (if both parents were listed as Republicans) "Independent." The other point was given for listing religious preference as "None," "Agnostic," "Doubtful," etc.

Finally, it was believed that ideological liberalism could be distinguished from rebellious independence in that the latter would be accompanied by a disdain for the ordinary duties of good citizenship and lawful conduct whereas the former would be accompanied by an acceptance of these duties. The following scale consists mainly of items in this area of content:

(11) The Responsibility scale of the California Psychological Inventory.

The following variable was introduced as an indicator of the extent to which DC and SI are related to an interest in social activities:

(12) Social Interest. A three-item scale derived from Biographical Data responses. One point was given for each of the following: a) mentions social activities as a major source of satisfaction in high school or prep school, b) indicates a desire for more than one roommate, and c) on a list of activities, when asked to check activities to which S devotes some time each week and to double-check activities to which S devotes "much" time each week, double-checks "arranging social activities" or "participating in community activities."

The following three variables were introduced to add information on degree and nature of psychological difficulties:

(13) Visited school psychiatrist one or more times while at Vassar.
(14) The F (exaggeration of symptoms) scale of the MMPI.
(15) The Hs (hypochondriasis) scale of the MMPI.

The psychiatric variable was introduced more for exploratory purposes than for the testing of a specific hypothesis. Although it appeared that it should be an objective indicator of psychological disturbance, Dr. Robert E. Nixon, the school psychiatrist, expressed the opinion that the students who saw him were for the most part not more disturbed than the others but were more actively interested in their own personality development. The F scale, it was assumed, would be more closely related to a factor involving awareness of and openness about psychological problems, whereas the Hs scale would be more closely related to a factor of genuine personality disturbance. The choice of these two scales from among the MMPI scales was governed to a considerable extent by the desire to avoid scales that had many items in common with the VAI scales.

The last two scales were included as measures of response sets.

(16) Adjective Checking. Total number of checks (for both parents) given to the 15 adjectives mentioned in the description of Variable 9. This was taken as an indication of readiness to endorse descriptive statements. This sort of tendency, if it exists, could be an important determinant of scores on a number of the scales included in this analysis, since they tend to be made up of descriptive items all of which might be agreed to to a certain extent, so that the readiness of S to endorse items becomes an important variable.

(17) Stereotype Rejection. This scale was derived from a check-list of 100 adjectives describing the "average" woman. The initial scale consisted of adjectives, all scored false, which were not significantly correlated with RS, a scale designed to measure the tendency to respond false to attitude statements. Item analysis aimed at maximizing the KR-21 reliability of the scale admitted items scored in the positive direction, but items significantly correlated with RS continued to be excluded. The final scale contained 49 items, five of them scored true, the rest, false. Items scored false tended to be mildly favorable adjectives which, it appeared, would characterize many but not necessarily most women; e.g., "always smiling and pleasant," "forceful," "humble," "self-confident," "trusting," "warm." The five items scored true were "critical of others," "impatient," "selfish," "snobbish," and "sometimes disrespectful." On the basis of the negatively scored items, which comprised most of the scale, it appeared that a high score indicated a tendency not to elaborate the stereotype of the average woman beyond realistic limits. The adjectives scored true, on the other hand, indicate a willingness to ascribe to the average woman some mildly unfavorable attributes which, though they are not a part of the conventional feminine stereotype, might yet be considered to characterize a majority of women. The total impression was thus of a tendency to use a realistic, one might almost say statistical, concept of the average rather than an impressionistic, stereotypical concept. It was believed that this variable would help to identify factors that were a function of stereotyped thinking as such rather than a function of a particular kind of stereotype, and in this sense the scale could be construed as a response set measure.

Source and Treatment of Data

Scores on the above variables were available for the class of 1958. Complete protocols were available on 249 Ss. Except for Liberalism (variable 10) all scale scores were based on freshman data. Liberalism scores were based on responses made as seniors because freshman scores were extremely low. For purposes of calculating intercorrelations of variables, scores on the longer scales (consisting of 18 or more items) were grouped into five categories by splitting the score distributions at the 9th, 27th, 73rd, and 91st percentile points. Biserial correlations were used between variable 13 (which had only two categories) and the other variables. All correlations were corrected for coarse grouping except where the correction was already built into the grouping or correlation method. Two iterations of Thurstone's complete centroid method of factor analysis were carried out. Six factors were extracted, leaving no residual correlation greater than .10. Twenty-six pair-wise orthogonal graphic rotations of the factors were performed, aimed at an orthogonal approximation to simple structure. The final set of rotated factors is presented in Table 1.

Table 1

Loadings of 17 Attitude and Personality Variables on Six Orthogonal Rotated Centroid Factors

Variables	Factors					
	I	II	III	IV	V	VI
1. Dominance and Confidence	.09	.75	-.04	.03	-.05	-.01
2. Social Integration	-.50	.75	-.01	-.06	.07	-.15
3. Impulse Expression	.84	-.25	.24	.13	-.03	.01
4. Developmental Status	.55	-.19	.65	.36	-.07	-.02
5. Social Maturity	.11	.36	.63	.44	-.05	.03
6. MF I (feminine interests)	-.24	-.01	.03	-.09	.30	.03
7. MF II (feminine passivity)	-.75	.08	.10	-.06	.33	-.01
8. MF III (feminine sensitivity)	.38	-.63	-.06	-.06	.27	-.16
9. Rebellion Against Parental Authority	.34	-.16	.03	.10	.17	.09
10. Liberalism	.15	-.14	.00	.57	-.04	-.05
11. Responsibility (CPI)	-.50	.09	-.22	.26	.25	-.17
12. Social Interest	.34	.09	.08	-.20	.26	.00
13. Visits Psychiatrist	.16	-.17	-.05	.53	-.29	.10
14. F (MMPI)	.28	-.24	.16	.17	-.07	.41
15. Hypochondriasis (MMPI)	.29	-.51	.15	-.09	-.01	.30
16. Adjective Checking	.12	.09	-.39	.03	.31	.03
17. Stereotype Rejection	.12	-.14	.30	.14	-.12	-.08

Interpretation of Factors

The principal and purest determinant of Factor 1 is the IE scale. At the opposite pole of the factor is MF II (feminine passivity). The designation Impulse Expression, implying an acting out of impulses, seems to accord with these and the other significant loadings on the factor. Thus, the factor has a substantial positive correlation with DS, but little correlation with SM. Rebellion Against Parental Authority has its highest loading on this factor, but so too does Social Interest. A slight pathological component, as has previously been noted in IE, is shown by the significant positive loading of MF III (feminine sensitivity) and loadings near .30 of the two MMPI scales. Unconventionality is indicated by the substantial negative loading of SI and irresponsibility is shown by the negative loading of Re (the highest loading that Re has on any factor).

The purest determinant of Factor II is DC, although SI's loading on the factor is equally high. At the opposite pole are MF III (feminine sensitivity) and Hs. SM has a significant positive loading on the factor. IE and DS have small negative loadings. The factor evidently involves confidence in social situations along with freedom from psychological complaints. That it is not simply an interest factor is indicated by the failure of Social Interest to load the factor. The factor might therefore be labeled Sense of Social and Emotional Well-Being.

Factor III is not so clearly defined as the preceding factors. The two variables with highest loadings on the factor, DS and SM, also have substantial loadings on other factors. Although its loading on the factor is just barely significant, Stereotype Rejection emerges as the purest measure of the factor. This loading, together with the substantial negative loading of Adjective Checking, suggests an appreciable response set component, which will be discussed below. The loadings clearly indicate a factor having to do with social attitudes. It will be labeled Sophistication of Attitudes for reasons that will be made clearer in the discussion of Factor IV.

Factor IV is the only factor of any strength coming out of the present analysis that is principally determined by variables other than VAI scales. Although DS and SM have substantial loadings on the factor, it is most clearly determined by Liberalism and, to a lesser extent, by the psychiatric variable, variable 13. The connection between these two variables is puzzling. That it is quite strong is shown by the similarity of the loadings of the two variables on the other factors as well. That Ss who saw the psychiatrist while at Vassar are distinguished more by their liberal political and religious preferences than by scores on measures of psychopathology lends weight to the psychiatrist's opinion that they are not more disturbed than other students but only more disposed to growth and change. In contrast to Factor III, Factor IV seems to represent a more overt kind of liberalism, less associated with verbalized attitudes and with response set. Interestingly, Responsibility has a positive loading on Factor IV but a negative loading on Factor III, in keeping with the hypothesized distinction between a genuine liberal orientation and a verbalized liberal veneer. It thus seems appropriate to label Factor IV Liberalism and to designate Factor III as a factor representing more sophisticated (less stereotype-bound, more skeptical) attitudes that are usually but not necessarily associated with liberalism. (It is apparent from the factor loadings that if oblique factors were admitted, these two factors would be positively correlated.)

Factor V is weakly determined. It is the only factor on which the three MF scales have non-trivial loadings all in the same direction. It may therefore be tentatively identified as a factor of Femininity. Apart from the MF variables, the only loadings of any size are a positive one on Adjective Checking and a negative one on the psychiatric variable—variables which do not seem to add appreciably to the meaning of the factor.

Factor VI has its only significant loadings on the two MMPI scales, and may represent some kind of symptom-reporting tendency that is most clearly brought out by scales of this type.

Relation of Validity Measures to Factorial Results

Several variables that might be regarded as validity measures were included in the analysis: Adjective Checking (presumed to indicate acquiescence) and Stereotype Rejection were included especially for that purpose. In addition, the F scale of the MMPI has been used as a measure of tendency to exaggerate symptoms. MF III is similar to the F scale in this respect, being a scale in which 26 out of the 33 items are scored true and most of the items concern reports of pathological symptoms. The intercorrelations of these scales are reported below. For information, correlations with RS, a scale thought to measure the opposite of acquiescence, are also included.

With the exception of the correlation between MF III and RS, which may be accounted for by the high degree of item overlap, the correlations between these scales are very low. The negative correlation between Adjective Checking and Stereotype Rejection is in accord with a response-set interpretation. The positive correlations between Stereotype Rejection and F and MF III are in the opposite direction from what would be predicted on the basis of an acquiescent response set. The correlation between MF III and F, although in the expected direction, is surprisingly low considering the similarity of content and scoring direction and the magnitude of the correlations of these variables with other scales in the analysis.

	Adj. Check	Stereo. Rej.	F	MF III	RS
Adj. Check					
Stereo. Rej.	-.18				
F	-.07	.15			
MF III	.11	.07	.13		
RS	.01	-.13	-.23	-.72	

Adjective Checking and Stereotype Rejection thus provide the only reasonable indicators of a response set, a response set that may be described as not simply a tendency to agree or disagree but rather as a tendency to attach labels readily versus a tendency to be charry about applying them. If such a response set is related to some factor, it will be expected that these two variables will have loadings of opposite sign on the factor.

Thus on Factor I, Impulse Expression, the two variables cancel each other out, showing no evidence of a response set component. On Factor II, Sense of Social and Emotional Well-Being, there is a very weak tendency for this trait to be associated with a readiness to apply labels. Factor III shows the strongest association with this response set, in the negative direction. That is, Sophistication of Attitudes appears, quite reasonably, to be associated with a tendency to be reluctant to apply labels to people. This tendency is not related to Liberalism as represented by Factor IV. Factor V, Femininity, shows some association with tendency to apply labels, particularly with Adjective Checking. Since the latter variable is based on adjectives describing conventional parental characteristics, it may indicate a relation between femininity of attitudes and a conventionalized view of parents. Factor VI, although it has its highest loading on the MMPI F scale, has little relationship to the response set variables considered here. The loading of MF III, in fact, is opposite in sign from what would be expected on the basis of its formal similarities to the F scale.

Discussion

In comparison with the results of the preliminary factor analysis, the present results show one marked difference which may be attributed to removal of the spurious communality due to item overlap between SI and RS. As before, a factor determined by DS and SM and another factor determined by DC emerge, but in place of the factor determined by RS and SI, a new factor determined by IE emerges. SI in the present analysis was found to be most closely related to the factor determined by DC, but with a considerable part of its variance accounted for by the factor determined by IE.

The emergence of a clear Impulse Expression factor must thus be counted as a major finding of the present study. The other major finding, which may be attributed to the inclusion of non-test measures of liberalism, is the identification of two different factors related to liberalism of attitudes--one a primarily verbal factor, the other a factor of more overt liberal behavior.

We may now consider the findings from the point of view of their contribution to an understanding of what the VAI scales measure. First of all, it must be pointed out that the aim of accounting for larger portions of the variance of the VAI scales was more than offset by the loss of communality resulting from the elimination of RS from the analysis. As a result, the present factors accounted, on the whole, for less of the variance of the VAI scales than did the first analysis but it can only be inferred that a good deal of the variance of the factors in the first analysis was spurious and due to the fact that RS overlapped considerably with all the other VAI scales.

DC emerges as the purest of the VAI scales. If the interpretation of Factor II is correct, then it may be said that DC clearly represents a general sense of well-being with respect to psychological and social adjustment. A good deal of the variance of DC remains unaccounted for, however, so that we cannot confidently say that there is not some other component, perhaps related to dominance or aggressiveness, which is also involved in DC.

SI appears to have two components of note—the principal one being the same as that measured by DC, the other being the opposite of IE (evidently control or low level of impulsivity).

IE also appears as a quite pure scale, and it may be noted that the present analysis did account for more of the variance of IE than did the earlier one. The interpretations given to IE in the monograph reporting its development seem to be essentially confirmed by this analysis.

DS, as might be expected from its method of development, emerges as a factorially complex scale, having components of sophistication of attitudes, liberalism, and impulse expression.

SM, on the social attitude factors, has very much the same composition as DS, but where DS is related to impulse expression, SM is more related to psychological well-being. The two scales might thus be taken to represent two different personality bases for liberal social attitudes.

Femininity as such did not emerge as a clear variable, although there was an indication of a sex-role factor distinct from the other factors. MF I (feminine interests), appropriately, was the one MF subscale that had its highest loading on the femininity factor, though it had a loading of -.24 on Impulse Expression. MF II, (feminine passivity), had most of its variance accounted for by negative loading on Impulse Expression. MF III was the only MF subscale to have a positive loading on Impulse Expression, but its largest loading was a negative one on Sense of Social and Emotional Well-Being. These findings suggest that it may be possible to develop a sex-role measure with some distinct psychological meaning, but that the task of separating it from other more salient personality variables will be quite difficult.

Some of the other variables included in this analysis produced findings of sufficient interest that they may merit further investigation. The scale of Rebellion Against Parental Authority proved to be a fairly pure measure of Impulse Expression. The content of this short scale is clear enough that a longer scale should be easy to develop, and the results indicate that it might be worth doing.

Stereotype Rejection proved to have disappointingly low communality in the present analysis, but it seems to add information on an aspect of Factor III that is not supplied by the other variables. A scale developed along similar lines from a larger item pool might produce a stronger measure of this interesting variable.

The factor structures of the MMPI F and Hs scales were quite similar in this analysis, suggesting that in a normal population like this one the scales do not function very differently—that is, that it is inappropriate to consider one a diagnostic scale and the other a validity scale. More likely, both components are present in both scales to much the same degree.

The Responsibility scale of the CPI proved to be one of the most informative scales in the present analysis, probably because it taps a content area that is not clearly identifiable in the VAI scales. Re has low reliability in a population such as the one studied here, no doubt because of restriction of range. Because of the social significance of its content, it would be of value to construct a new version of the scale appropriate for college populations.

Summary

Eight VAI scales—DC, SI, IE, DS, SM, MF I, MF II, and MF III—and nine other variables were factor analyzed. Six factors emerged. The two which accounted for the most variance were identified as Impulse Expression and Sense of Social and Emotional Well- Being. Two factors in the domain of social attitudes were obtained. One, primarily verbal in character, was labeled Sophistication of Attitudes; the other, primarily determined by liberal political and religious preferences, was identified as *Liberalism*. The remaining two factors, weakly determined, were tentatively identified as *Femininity* and as a factor specific to MMPI-type scales. The factors were discussed in terms of their contribution to an understanding of what the VAI scales measure.

C. Studies of College Alumni

In the long run the best evaluation of the meaning of a college education is likely to result from studies of alumni. What are college graduates like—five, ten, twenty, and thirty years after graduation? How have they been influenced by college experiences? How do college graduates differ from high school graduates? How do they differ from individuals who have had but a year or two of college? What differences exist among graduates of various kinds of colleges, for example, private versus public, denominational versus non-sectarian, large versus small, coeducational versus schools of one sex? Knowledge of such matters would, of course, be of great value in understanding what colleges do to and for students and in formulating educational goals and procedures.

Unfortunately such studies are complex and not easily carried out. For example, how do we separate post-college from undergraduate experiences in accounting for the qualities of alumni? Social forces of one decade may differ markedly from those of another and contribute to differences among alumni that may be inaccurately attributed to the influence of college experience. Again, how do we know that the qualities that distinguish college graduates from high school graduates may not be primarily functions of the characteristics that lead high school students to choose to go on to college in the first place? For example, a study of Wolfle and Smith (1956) demonstrated that among high school graduates who do not go to college as well as among those who do, rank in the graduating class and scores on intelligence tests are associated with income after graduation.

In the absence of systematic theory concerned with changes in the personality or behavior of adults, one is often at a loss as to just where to begin the study of college graduates. As we shall see, however, enough work has been done to give us some valuable suggestions about how experiences of the college years fit into the larger life patterns of individuals and how the meaning and implications of these experiences change with the times.

Relevant Literature

There have been few studies in this important area. Most of the empirical ones center on various gross sociological factors, such as the income of college graduates, the age at which they marry, or the number of children they have. There are several studies, chiefly ones utilizing questionnaires, that assess such factors as the esthetic values of college graduates, their interests and opinions, and their attitudes toward various aspects of their college careers. Rare indeed are studies of the same people in college and again as alumni. There appears to be no study that evaluates the actual knowledge of alumni in various areas, something that might be assessed by achievement tests comparable to those given undergraduates. Considering the relative simplicity of the design of such studies, it seems surprising that none has been carried out.

Most of the prominent studies of alumni will be discussed below under appropriate topics. There are two books, however, which are quite extensive in coverage, and these will be described first.

They Went to College, by C. Robert Pace (1941): Cross-sections of men and women who entered the University of Minnesota in 1924, 1925, 1928, and 1929 were surveyed by means of a 52-page questionnaire in 1937. About half of the subjects were graduates, the others having withdrawn prior to graduation. The questionnaire covered a wide variety of topics, such as work, income, family, recreation, and political opinions and activities.

The general findings are consistent with those of Jacob's more recent *Changing Values in College* (1957). The lives of alumni were pretty much centered in the "private" sphere, with the family, work, and recreation as the predominant interests. The alumni voted, and were interested in governmental policies, but tended to be rather passive politically. Intellectual and esthetic pursuits did not loom large in their lives, a fact which led Pace to suggest that "colleges may not be producing the cultural values they so frequently claim." The chief differences between graduates and the people who dropped out of college were in the vocational realm—the income of the graduates being somewhat higher and their reported job satisfaction somewhat greater. Otherwise, differences were inconsequential. Thus, for example, the level of reading matter was not appreciably higher for the graduates than for the "drop-outs."

An interesting sidelight of Pace's study was the fact that "togetherness" in the home did not seem so prevalent in 1937 as it became a decade or so later. Thus Pace says, ". . . women were doing most of the work, and worrying most about the majority of the problems, around the home."

They Went to College, by Ernest Havemann and Patricia Salter West (1952): This book reported on questionnaire returns from 9,064 respondents representing 1,037 colleges. The data were obtained in 1947. The study was designed originally to shed light on readers of *Time* magazine and was not intended to be a study of college educated people as such. Since most *Time* readers are college educated, however, the data lent themselves readily to conversion to a study of the general state and activities of men and women who have attended college.

Data from this study will be utilized in various of the sections to follow, but a few of the more interesting results or observations that do not fit into any of the topics to be discussed later will be noted here. Satisfaction with a college experience in general was almost universal. Ninety-eight per cent of the respondents would choose to go to college again, were they reliving their lives, and 84 per cent would choose the same college. This satisfaction did not hold, however, for the general type of curriculum or course pursued in college. In fact, this area was the focus of the greatest dissatisfaction with the college experience. In the matter of general versus more specific kinds of education, 44 per cent were satisfied with what they had had, 35 per cent wished they had had a more specific kind of training, and 21 per cent wished they had had a more general educational experience. Graduates in the humanities were distinguished by their relatively low incomes, and the situation was "even worse for social science graduates." In the professions, those who had had a more general type of undergraduate education tended to be "the more active and interested citizens." The college graduates most dissatisfied with general education were those in business. Students with high grades were more likely to enter professions, and even to earn more money in a given profession, than were students with lower grades. Grades tended to be related to financial success in all fields except business. The degree of satisfaction with the college experience, though related to grades, was little related to type and extent of extra-curricular activity. Alumni who had obtained higher grades as students were more content than others with their college, their major, and their extent of specialization.

Sociological Characteristics of College Alumni

In summarizing studies of the sociological characteristics of college alumni, the tentative nature of many findings must be borne in mind. Statistics pertaining to such matters as income or occupation are subject to much variation in accord with such factors as sex, age, race, religion, region, and size and type of college. Also, in most studies, the qualities of college graduates prior to or at the time of college entrance are incompletely assayed, if dealt with at all. Moreover, many conclusions and statistics vary with changing times and social conditions. Accordingly, it is likely that the 1960 census will lead to modification of a number of figures based on the 1950 or the 1940 census, or to re-interpretation of studies carried out in these decades.

Income. Most studies demonstrate a direct relationship between amount of schooling and amount of income. College graduates predominate in the higher paying occupations and earn more money job for job than people who have no college education or who have left college prior to graduation. As one would expect, when educational level and occupation are equated for the two sexes, the incomes of women are lower than those of men.

Working with the 1950 census figures (which are based on income in 1949) Glick and Miller (1956) reported the following mean annual incomes for men: for high school graduates, $4,519.00; for men with one to three years of college, $5,473.00; and for college graduates, $7,907.00. The difference of $2,434.00 between college graduation and college attendance was the largest increment between any two educational levels. Glick and Miller estimated that a man with a college degree earns some $100,000.00 more than a man who does not go on with his education beyond high school.

Bridgman (1960) pointed out that attention to the median rather than the mean quite drastically alters the census figures for 1949 income. Thus, the median rather than the mean difference between college and high school graduates is about $58,000.00, a figure very different from $100,000.00. Bridgman fears that blanket statements about the economic value of college education may serve to obscure the importance of such factors as individual differences in ability, interest, and motivation.

In recent years Harris (1949, 1960) and West (1953) have discerned a decline in the purely economic rewards of a college education. As college education becomes accessible to more and more people, its particular value as an avenue to large financial gain diminishes. And as the incomes of groups with less education rise as a result of union activity and social legislation, the gap between college-educated people and others narrows. Allied to this tendency is an indication that the upward social mobility, which has been an important product or by-product of American education, is somewhat on the decline—at least at the highest levels. Myrdal (1944) described education as the main prop to equality of opportunity in the twentieth century. But West (1953) and Havemann and West (1952) have pointed out that as colleges become more accessible to individuals of lower socio-economic status, there is a diminution in the opportunities for entering the top occupational classes to which education has held the key.

Occupations. There is a direct relationship between years of schooling and kinds of occupations. Thus, except for Negroes, each increment of schooling is associated with a decline in representation in service or laboring activities. In recent years college education has become almost a sine qua non for placement in the top occupational strata. Exceptions such as Harry Truman in the field of public affairs and Ernest Hemingway in the field of literature were not nearly so rare in the nineteenth century or slightly earlier. The National Opinion Research Council (1947) reported that in 1947, although only 5 per cent of the adult population of the United States held college degrees, over half considered that some college education was necessary for a young man "to get along well in the world" and 41 per cent thought that a college degree was necessary.

Interests. A number of studies (Strong, 1931, 1943, 1951, 1955; Kelly, 1955) have been concerned with the relationship between interest scores obtained during the college years and those obtained from the same individuals after various intervals of time. This is one of the few areas in which longitudinal studies of college alumni have been carried out. Strong tested a number of freshman and senior classes at Stanford University between 1927 and 1949 with the Strong Vocational Interest Inventory and then retested these same individuals at later dates, the intervals between testings ranging up to 22 years. Strong reported that the test-retest correlations are "amazingly high" and concluded that "Interest scores may be as permanent as intelligence test score. . . ."

Dressel (1954) has cautioned against too ready acceptance of the notion that interest patterns are highly stable and change but little. Correlations around .75 between tests and retests are high, to be sure, but they are nevertheless indicative of a fair amount of change since the original testing. It does appear evident, however, that there is a strong tendency for the interest patterns of college seniors to persist well into adulthood.

Marriage and Children. The proportion of college graduates who marry, their age at marriage, and the number of children of such marriages have received much attention.

For the fifteen-year period between 1940 and the mid-1950's the proportion of the population that was married increased more than for any period in our history for which such data are available. In this period the increase in proportion of married people was greater for the better-educated segments of our population than for those with less education. As Glick and Carter (1958) put it, "This positive relationship between educational level and increase in marriage . . . implies that more of the better-educated persons were forming families and that family formation was taking place at a younger age than before." They pointed out that by the autumn of 1956 one out of every four students in college was married. If older college students were omitted from consideration leaving only those of more typical college age, that is, 18-24, the figure dropped to about one in six; still a high proportion of married undergraduates.

College-educated men and women tend to marry individuals of similar educational levels (Glick and Carter, 1958). Glick and Carter (1958), Havemann and West (1952), Shosteck (1953), and Lehmann (1953) have reported that at all age levels the incidence of divorce is lower for college graduates than for people with less education.

College men have not differed much from other men in rate of marriage, although they tend to marry at a later age (Havemann and West, 1952; Bressler and Kephart, 1954; Grady, 1958). The marriage patterns of women college graduates are considerably more complex than those of males, however, and for this reason the literature on marriage and children of college-educated individuals has tended to concentrate on the women.

Traditionally, smaller proportions of college women have married as compared to women with less education. Although it is still true that the rate of marriage of college women is lower than that of non-college women, the differences are considerably smaller than they were for the decade prior to 1940 (Havemann and West, 1952; Bressler and Kephart, 1954; Newcomer, 1959). As in the case of college-educated men, women college graduates tend to marry somewhat later than other women. The mean age of marriage of college women has been declining since 1940, however, just as it has in the case of less well-educated segments of the population (McBride, 1958). Lehmann (1953) demonstrated that this trend toward early marriage started quite abruptly with the war classes of 1941-45. Havemann and West (1952) showed that graduates of women's colleges tend to marry somewhat later than other women college graduates but that eventually the two marriage rates are equal.

Perhaps even more striking than the increased rate of marriage of women college graduates in recent decades is the higher incidence of marriage among women with advanced degrees, as McBride's study of Bryn Mawr alumnae (1958) indicated. Interview studies of Vassar College undergraduates carried out by the Mellon Foundation disclose that very few of the students planning on graduate work or careers believe that such activities will make them any less eligible for marriage. These attitudes contrast rather sharply with those of students of former generations. Studies of Vassar College alumnae of earlier periods indicate that choice of graduate schooling or a career was often made with a more or less conscious awareness that such activity reduced the likelihood of marriage.

Census figures over the years have revealed an inverse relationship between years of education and number of children. It is still the case that college-educated people are producing fewer children than are individuals who have had less education, although various studies (Population Reference Bureau, 1952; Lehman, 1953; Shosteck, 1953) have suggested that the fertility rate of college-educated men and women has been rising sharply since World War II. The 1960 census figures will undoubtedly reveal a substantial increase in the number of children born to college graduates.

Values, Attitudes, and Opinions of College Alumni

Attention to changes that take place during the undergraduate years (Webster, Freedman and Heist, 1962) raises many questions that can be answered only by consideration of the years after graduation. What is needed is a sufficient amount of empirical information to enable us to place the experiences of the college years within a larger theoretical or systematic framework. We need to know which of the changes that take place are relatively transient and which become relatively enduring parts of the character or the personality. Do the changes measured by questionnaires, tests, or interviews reflect only relatively isolated areas of verbal functioning, or do they influence large and important life patterns? Do the experiences or characteristics of alumni seem continuous or relatively discontinuous with the college years or portions thereof? Is it appropriate to think of the college years as a phase or period of individual development that comes to an end with graduation? Or does it appear that at least for some time after graduation the same sorts of progressions or regularities of development which characterize the college years are manifest?

Reasonably definitive answers to questions like these can be obtained only by studies of the same individuals during the college years and later. Studies of college alumni of different age levels are of value, but the imponderables of social change are likely to render results of such studies somewhat equivocal. Although most investigations of changes in values, attitudes, and opinions have stopped with graduation, a few longitudinal studies in this area have been carried beyond the college years. Indeed, this is just about the only area, aside from Strong's studies of the interests of college students (1931, 1943, 1951, 1955) and the Mellon Foundation studies of personality development to be described later, in which the same individuals have been studied as undergraduates and again as alumni.

Senior-Alumni Comparisons. The most comprehensive longitudinal study of political, social, and economic outlook is one carried out by Nelson (1954). In 1936 Nelson tested 3,758 students at a variety of colleges, and in 1950 he repeated the testing with 901 of his original subjects. He discovered a post-college trend toward "slightly more liberalism" over the 14-year test-retest period, but, for the most part, the results indicated that the original positions were maintained with a considerable degree of consistency. The differences in means for the various colleges between 1936 and 1950 were "significant but small and indicate persistence" of the original attitudes. The correlation for individuals in the test-retest sample was .57. "The differences between students in different institutions tended to persist, although time reduced the differences to some extent." The regional differences obtained in the first testing session (for example, the Southern colleges contained more conservative student bodies) tended to persist into the second testing.

In 1950 Nelson tested undergraduates at one of the colleges involved in the study and found them to be more liberal than their predecessors in 1936. He considers that this change between undergraduates at the different periods parallels the slight trend toward increased liberalism found among alumni, and he concludes that liberalism "does not seem to be a function of the age of individuals or of what they are taught in college." Rather it is "a product of the times."

Nelson is saying two very important things. First, that there is a considerable tendency for the attitudes or opinions of seniors to persist without substantial modification well into the adult years. And second, that although tendencies toward such persistence are strong, some change may take place in the alumni years as a function of general cultural or societal pressures.

The other longitudinal studies that are available support Nelson's first conclusion although, unfortunately, the intervals between the original testing and the retest are considerably shorter than in his study. Bugelski and Lester (1940), after discovering that seniors were more liberal in their political, social, and economic attitudes than were freshmen, carried their study one step further: they retested the same groups as alumni—in the case of two classes, after a period of three years, and in the case of a third after the passage of two years.

No significant senior-alumni differences were discovered. Parenthetically, it might be added that these authors contradict Nelson's view that liberalism is not a function of college teaching, since they observed differential senior-freshman differences that were associated with type of curriculum. Since the general cultural scene appears to be an important influential factor, we may note that the period in which Bugelski and Lester were at work was the middle and late '30's.

In a study of attitudes and opinions expressed by alumnae of a women's college—a study carried out at about the same time as that of Bugelski and Lester —Newcomb (1943) obtained similar results. His subjects included not only alumnae who were actual graduates but also women who had left college after two or three years of attendance. The interval between the testing of undergraduates and the later retesting ranged from one to three years.

Newcomb discovered "no large differences" for any groups between the original testing and the retesting one, two, or three years later. If the original subjects had spent three or four years in college, their scores continued to change slightly in the liberal direction. This trend did not hold, however, for the group that had spent but two years in college. Their scores tended not to change. These findings led Newcomb to conclude that there is "no regression to the mean or to home and family standards" in the early post-college years. But this conclusion held for groups one or two years out of college; not for those that had been out three years. In the case of the latter groups, there was a slight indication of a reversal of the freshman-senior tendency, leading Newcomb to postulate a trend toward reversion to the freshman position with greater lapses of time after leaving college. Thus, he hypothesized that, "those longest out of college and those who spend the least time in college are more like freshmen. Those most recently out and those who spent the most time in college are more like seniors."

The number of subjects comprising Newcomb's various groups were quite small; in most cases not large enough to meet the minimal requirements for dependable statistical manipulation. Also, Newcomb pointed out a possible source of bias. Not all alumnae and ex-students responded, and among the respondents was a significantly larger number of individuals with lower scores on conservatism than would be expected on the basis of chance. Inclusion of larger representation from high scorers could conceivably have changed the results somewhat. Nevertheless, Newcomb's essential findings resemble those of Nelson and of Bugelski and Lester in indicating that the values, attitudes, and opinions with which one leaves college tend to persist.

The Mellon Foundation has studied in three different graduating classes samples of alumnae who had been tested as seniors. One class was retested after three years and the other two after four. The test batteries differed somewhat for the three classes, but each contained a number of scales relevant to the general area of values, attitudes, and opinions, chiefly the California F and E Scales (Adorno et al., 1950), the Vassar Social Maturity Scale (Webster, Sanford, and Freedman, 1955), and the Tolerance Scale of the California Psychological Inventory (Gough, 1957).

The samples of alumnae were obtained primarily by writing to women selected at random from the list of the graduating class. However, each alumnae sample contained returns for some fifteen to twenty women who were tested at alumnae reunions rather than by the mail procedure. Of course, not all of the alumnae included in the original samples returned their tests, completions amounting to some 60 to 70 per cent of the original totals for each class. Comparisons of the means of the alumnae samples as seniors with those of the entire senior classes of which they form a part demonstrate that the responding groups are reasonably representative of the larger alumnae classes.

Results indicate that there are no clear trends in senior-alumnae differences for a three or four year period after graduation, and one may conclude that the results of the studies carried out by Nelson, Bugelski and Lester, and Newcomb in earlier decades are replicated by the Mellon Foundation studies. All these studies agree that there is no indication that the early years after graduation are ones in which large scale shifts in ideology or attitudes occur.

Utilizing the F and E Scales, Freedman (1959) made a study of alumnae of Vassar College for various decades going back as far as 1904. The classes involved were 1904, 1914, 1921-24, 1929-35, and 1940-43.

These alumnae were tested between 1955 and 1958 in two ways. In some cases the tests were administered at Vassar, when reunions or special studies made groups of alumnae available. Otherwise, the tests were sent by mail to alumnae selected at random from lists supplied by the alumnae office. In cases where results for one group or class were composed of data obtained in both fashions, there were no statistically significant differences between the two groups. At least as far as the F and E Scales are concerned, alumnae who attend class reunions do not differ from those who are not present at reunions but who respond to mail invitations to participate in a survey of opinion.

The alumnae involved in this study were members, although not necessarily active ones, of the Alumnae Association of Vassar College. Moreover, of course, in the case of the returns obtained by mail, our responses were limited to those of alumnae who were cooperative enough to return the questionnaire sent to them. Returns averaged 60 to 70 per cent of the total number of questionnaires sent out. Accordingly, the extent to which our findings are representative of entire groups or classes of alumnae of the periods concerned is unknown. There is no apparent reason for thinking, however, that there may have been some systematic bias of sampling which would account for the differences between groups or classes of alumnae.

The results of this study showed substantial differences between some of the groups and classes. Thus, the Class of 1904 was significantly higher than the Class of 1914 on both the F and E Scales. Similarly, on the F Scale, the Classes of 1921-24 differed significantly from the Classes of 1929-35.

These results are in keeping with the findings reported above and suggest that the attitudes and values with which one leaves college have considerable permanence. We do not know, of course, what the original mean scores for these various groups would have been, had they been tested at the time of leaving college. The fact that the means of some adjacent groups differ significantly from one another tends to rule out chronological age or life experiences subsequent to graduation as cogent explanatory factors. While on this basis one could account for differences between groups of women widely separated in age, such explanations do not appear adequate to explain the large differences between members of adjacent decades. On the basis of chronological age or life experiences subsequent to graduation one would not expect women averaging 74 years of age at the time of testing to differ appreciably from women who are 66 on the average, or women of

47 to differ from those who are 43.

What seems more likely is that the differences noted at the time of testing reflect differences which were present at the time of leaving college. Whether the differences which we surmise to have obtained at the time of graduation from college reflect the influences of events of the college years or earlier ones cannot, of course, be answered by these data alone. We know from Webster, Freedman and Heist (1962) that considerable change in the kinds of sentiments that make up the F and E Scales is a common accompaniment or outcome of liberal education. It would seem reasonable to think that the scores of the groups of alumnae were higher as freshmen and that the scores obtained at the time of testing reflect lower senior scores. In any event, there appears to be substantial evidence that the various sentiments, values, attitudes, and opinions tapped by the F and E Scales have very likely persisted with little change from graduation well on into later life.

The above findings have considerable educational import. If the values, attitudes, and opinions with which one leaves college are likely to persist into later life with but little modification, the college years take on enormous importance. One cannot think of the college years as but one of a number of periods in life in which substantial modification takes place. For many students, apparently, changes in values, attitudes, and opinions or lack of such change end with graduation. As Webster, Freedman and Heist (1962) make clear, the origins of such changes during the college years are obscure. To a considerable extent, it may be that the changes that occur during this period are more a reflection of the cultural and societal forces that impinge upon the colleges and individual students than the effect of deliberate educational policy or program. But even if this be the case, it appears that the college years are ones characterized by a degree of openness to change that is not later duplicated.

Thus far, we have emphasized the relative fixity of opinion and outlook after graduation. Yet, as has been mentioned, there is evidence that some change may take place. Hyman and Sheatsley (1953) pointed out that during "the McCarthy period," that is, around 1953, there was an increase among college-educated citizenry of restrictive sentiment with regard to the exercise of traditional American freedoms by Communist and other dissident groups. Gallup polls in that period showed that the proportions of college alumni who would deny various rights to individuals identified with Communist positions increased, even though college-educated people were more liberal than those with less education. Apparently, strong pressures, such as those exercised by the forces of public opinion in support of Senator McCarthy, can effect changes in beliefs and attitudes among college alumni.

Yet the studies of Vassar alumnae reported above suggest that such changes are not very frequent and often not great. Table 2 presents a number of items having to do with the general outlook on economic matters of the five classes and groups for which results on the F and E Scales were just reported, plus the Class of 1954, which was tested in 1958. The responses to these items indicate that the period of the New Deal during the 1930's, with the great economic changes which accompanied it, probably had little effect upon the outlook of Vassar alumnae. One might expect, for example, that the alumnae of the Classes of 1921-24, who were relatively young women when Franklin Roosevelt took office, would display some indication of having been influenced by the greatly changed economic climate of the 1930's as compared to the period of Presidents Harding, Coolidge, and

Table 2

Percentages of Plus and Minus Responses for Economic Items for Six Groups of Vassar Alumnae

	Class(es)											
	'04		'14		'21-'24		'29-'35		'40-'43		'54	
	Number Tested											
	85		43		73		50		77		81	
Public Opinion Survey Items	+	-	+	-	+	-	+	-	+	-	+	-
1. It is up to the government to make sure that everyone has a secure job and a good standard of living.	29	71	23	77	15	85	28	72	08	92	17	83
2. The government should own and operate all public utilities (railroads, gas, electricity, etc.).	15	85	19	81	17	83	20	80	09	91	19	81
3. The only way to eliminate poverty is to make certain basic changes in our political and economic system.	46	54	40	60	41	59	32	68	37	63	38	62
4. In a new tax program it is essential not to reduce the income taxes on corporations and wealthy individuals.	29	71	31	69	25	75	24	76	26	74	29	71
5. In general, full economic security is bad; most men would not work if they didn't need the money for eating and living.	66	34	60	40	58	42	47	53	52	48	45	55
6. There should be some upper limit, such as $25,000 per year, on how much any individual can earn.	21	79	12	88	15	85	15	85	05	95	02	98
7. Most of the present attempts to curb and limit unions would in the long run do more harm than good.	44	56	19	81	21	79	42	58	28	72	18	82

Hoover. Yet, examination of their responses indicates that they are one of the more conservative alumnae groups. If they were influenced by Roosevelt and the New Deal era, the influence was apparently neither great nor very lasting.

These findings suggest that massive or profound social change may often be compounded out of slight shifts of attitude or belief among individuals. Probably many Vassar alumnae were influenced to some degree by Franklin Roosevelt and the New Deal. Many aspects of the welfare state, for example, our social security arrangements, are now pretty much taken for granted, although a generation ago they were regarded by many individuals as intolerable socialistic measures. It would appear that, in dynamic systems, slight initial differences can result in large differences in outcome.

Alumni and Other Citizens Compared

In 1949 Pace (1949) wrote that since the President's Commission on Higher Education (1948) had stressed the importance of good citizenship as a goal of education, it was possible to appraise the outcome of our educational processes at least in part by taking inventory of the citizenship activities of college alumni. On the basis of analysis of responses to questions concerned with political activities, Pace reported that of the alumni figuring in the Time Magazine survey of 1947, fewer than one-third signed petitions, fewer than one-quarter sent telegrams or letters to office-holders, and fewer than one-fifth contributed money to political causes. Only about 20 per cent of the alumni could be considered as truly active politically. These findings were similar to those obtained by Pace in studies of University of Minnesota alumni carried out in 1937 (Pace, 1941). Although they are likely to be rather passive in political matters, college alumni do vote in national elections with greater frequency than other citizens. In the 1947 Time survey, 79 per cent of the college graduates reported voting in national elections versus a figure of 55 per cent for the general population.

In actual political sentiment or party preference college-educated people definitely lean toward the Republican Party. In the 1947 Time survey, Republicans outnumbered Democrats by a margin of 3 to 2. Had there been exclusion of the South, where, of course, Republicans are relatively rare, the margin of Republicans over Democrats would have been even greater. Republicans were in the majority for all income levels indicating that preference for the Republican Party was not associated more with level of income than with education. However, age seems to play a part in party preference. There are fewer Repbulicans among the younger men. Also Havemann and West (1952) reported a tendency toward an increasing number of voters among the younger alumni who termed themselves "independents." There was some evidence that proclivity toward labelling oneself "independent" was associated with higher grades as an undergraduate. The "independents" were noted to favor very liberal positions on social and political questions.

As for the general social and economic views of college alumni as compared to the rest of the population, there is evidence that college-educated people are more conservative with respect to economic issues, but as was mentioned earlier, they are more tolerant of radical ideas and unconventional people, less prejudiced toward minority groups and alien cultures, and more internationalist in outlook. On the basis of polls taken in 1954, Stouffer (1955) reported decreasing tolerance of the civil rights of dissident and minority political groups, as one descends in the educational hierarchy. The relationship was linear, with college graduates being the most tolerant, and it held for all age groups. Since the educational attainment of Americans increases yearly, Stouffer suggested that perhaps we may expect a more tolerant future population. Among college-educated people beginning with age 40 there was a consistent tendency for the older age groups to be less tolerant than the younger, but there was little difference between college graduates in the 30-39 and the 21-29 age ranges. Whether the increase in intolerance of the older age groups was a function of increasing age or of differences that existed at the time of graduation from college cannot be answered by the data themselves. The studies reported above by Nelson, the Mellon Foundation, and others on the relative persistence of attitudes after graduation suggest that the latter may be the more likely explanation. Hyman and Sheatsley (1953) also envisioned long-term trends in the American citizenry toward more tolerance in matters involving civil liberties as a result of increased educational attainment as well as "less authoritarian child-rearing and school systems."

Levinson (Adorno et al., 1950) reported low but dependable relationships between intelligence and amount of education on the one hand and freedom from ethnocentrism on the other. Generally, college alumni display more liberal attitudes toward ethnic or religious minority groups, but the Time survey of 1947 indicated that this was particularly true of younger alumni. This survey also revealed that Southern alumni who moved North displayed less racial prejudice than those Southerners who remained in the South. Northerners who moved to the South did not display the converse, however, but remained steadfast in their liberal views of race relationships.

Table 2 indicates that Vassar College alumnae are extremely conservative in economic outlook; and while they may represent a somewhat more conservative group than college alumni at large, their sentiments reflect the general findings for college-educated people. College graduates distrust "welfare economics" and strong government. Generally they are on the side of business in conflicts with labor or in resistance to government regulation. Pace (1949) considered that some of the attitudes toward economic affairs displayed by college alumni bring into serious question the quality of teaching about such matters in our colleges. For example, he pointed out that a majority of alumni in the 1947 Time survey indicated a belief that government planning and socialist economic measures meant the end of liberty and freedom, despite the evidence to the contrary to be found in such countries as Great Britain or the Scandinavian states.

Other Aspects of Personality Development after College

Alumnae-senior comparisons, in terms of scores on the Vassar scales described by Webster, et al. (1962), are available for the Vassar classes of 1954 and 1955. The alumnae samples were obtained in the same fashion as that described in the preceding section, and both of them were retested four years after graduation. The only change that is significant in both classes comes on the Repression and Suppression (RS) scale, the subjects obtaining higher scores as alumnae than they did as seniors. This finding may be interpreted to mean that the alumnae as compared to the seniors are more stable emotionally and more assured socially, less anxious and depressed, generally more confident and imperturbable.

Comparisons of alumnae (a representative sample) with senior scores on the Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway and McKinley, 1951) are available for the class of 1955 tested again four years after graduation. The chief finding is that the alumnae are lower on all of the clinical scales. This indicates that the alumnae, as compared to their state as seniors, reveal less evidence of emotional difficulty, anxiety, or psychological unease and more evidence of physical and psychological well-being.

Senior and alumnae retests on the California Psychological Inventory (CPI) (Gough, 1957), an objective test of a wide variety of psychological and social characteristics, are available for 80 women in the class of 1956 who were retested in 1959. Comparison of the means of the alumnae sample as seniors with the total senior class indicates that the alumnae group compose a representative sample, inasmuch as the groups differ significantly on only one scale. The results of the CPI comparisons may be summed up by saying that the alumnae as compared to the seniors display increases in the following qualities: capability, cooperativeness, efficiency, resourcefulness, conscientiousness, patience, helpfulness, sympathy, calmness, deliberateness, spontaneity, and talkativeness.

In summary, studies of young alumnae show that they gain after graduation in feelings of stability, optimism, and contentment, as reflected in changes in the RS Scale, the MMPI, and the CPI; and that they remain unchanged three or four years after graduation in respect to the chief qualities that distinguish seniors from freshmen, for example, lessened authoritarianism and increased freedom of impulse expression and "rebellious independence."

A study carried out by Tate and Musick (1954) sheds some light on the generality of the findings involving Vassar students and alumnae. They tested 92 seniors at Virginia Polytechnic Institute in 1940-41, and retested eighty as alumni in 1947-48. The measures involved were a personal adjustment scale and the Bernreuter Personality Inventory (Bernreuter, 1933). The results resemble those obtained by the Mellon Foundation in its studies of recent alumnae of Vassar College. On the Bernreuter Personality Inventory the alumnae were lower on neuroticism and higher on extraversion and dominance. The repetition of the personal adjustment scale revealed fewer problems for the subjects as alumnae than as students. Apparently the turbulent years of the Second World War did not prevent these students from making strides toward increased stability and "adjustment" in the years after graduation.

We have seen that the attitudes and opinions with which one leaves college are likely to persist relatively unchanged well on into middle and old age. One may ask if this is true also of the kinds of characteristics measured by the Vassar scales. It seems not unreasonable to hypothesize that the maturing and aging processes would be accompanied by a gradual reduction of scores on such scales as Developmental Status (DS) and Impulse Expression (IE) (see Webster et al., 1962). There are data that bear upon this point. Fifty alumnae from the Classes of 1929 to 1935 (a reasonably representative group of alumnae in their age range) were studied in 1954, when they were forty to forty-five years of age (Sanford, 1945; Brown, 1962).

Comparison of scores for these alumnae with senior and freshman scores of the class of 1958 shows that on the IE Scale the alumnae resemble freshmen more than they do seniors and that on the DS and SM Scales they fall somewhere in between the freshmen and seniors. Lacking scores for these alumnae as seniors, we do not, of course, know whether their scores on these scales would have been higher, had they been tested as seniors. It is interesting to observe that the senior-alumnae comparisons on most of the other scales resemble very much the results obtained in the testing of the classes of 1954 and 1955 four years after graduation, except for the Dominance and Confidence Scale (*DC*) on which the alumnae are appreciably lower than seniors. The finding that the alumnae are fairly high on the Social Integration (*SI*) and Repression and Suppression (*RS*) Scales lends weight to the notion that the fairly low *DC* Scale score is not a function or accompaniment of increased feelings of anxiety, depression, or general psychological disorder, since the *DC* Scale is substantially correlated with the *SI* and *RS* Scales. Moreover, the *MMPI* profile of the alumnae of the classes of 1929-35 is almost identical with that of the alumnae of the class of 1955, retested in 1959. Perhaps, then, the low *DC* Scale score does not represent a drop from a hypothetical senior score but instead indicates a difference between younger women and those of earlier generations.

As indicated by Webster et al. (1962), the bulk of the freshman-senior change on the Vassar Scales has taken place by the end of the sophomore year. This finding plus those reported above for senior-young alumnae comparisons suggest that juniors and seniors should be regarded as belonging to a phase of development closer to that of the young alumnae than to that of freshmen and sophomores. Perhaps we should think of a developmental phase of late adolescence, beginning at some point in high school or prep school and terminating around the end of the sophomore year in college; followed by a *developmental phase of young adulthood* that begins around the junior year and carries over to a yet undetermined extent into the alumnae years. From this point of view, basic changes in qualities of character, outlook on life, and fundamental personality characteristics are consolidated by the end of the sophomore year, after the developmental phases of early and late adolescence in which rapid change has taken place; and for some time thereafter little change takes place in these characteristics, or at least, change is likely to be a more measured or gradual affair.

Further research is needed in order to clarify the meaning of the results involving the *RS* Scale and the *MMPI*. One tenable hypothesis is that the subsequent rise in *RS* score and lowering of *MMPI* scores among alumnae are an indication that [illegible] of changes of adolescence, painful or difficult to integrate into the personality at times, have now been consolidated. However, one may posit an alternative view of things: higher scores obtained on the *MMPI* by seniors as compared to freshmen, the increase of "neurotic" symptoms which takes place between freshman and senior years should be regarded more properly as a kind of external phenomenon, a function of the considerable demands made by the faculty and administration of a school that maintains high standards of scholarship and academic performance. Considered in this way, the increased stability and well-being of alumnae as compared to seniors is primarily a product of the less rigorous lives of the former, the lessened intensity of demands made upon them.

In any event, the findings with regard to personality change between college entrance and three or four years after graduation suggest that there may be some basis for considering juniors and seniors to be in a developmental stage rather different from that of freshmen and sophomores. This may be an argument in favor of different kinds of curricula for the two groups of students. Because they are in a different stage of personality development, it seems very likely that upperclassmen will benefit from somewhat different kinds of experiences than will freshmen and sophomores.

Relationship between Experiences of the College Years and Events of Later Life

During the Second World War an accelerated program (graduation in three or fewer years) was available on an optional basis to undergraduates at Ohio State University. Pressey (1949) and Flesher and Pressey (1954) made studies of the status as alumnae of large numbers of women who were graduated in the accelerated program. On the basis of such characteristics as entrance tests, grades, and courses of study these women were matched against controls who matriculated in a non-accelerated or regular program.

Ten years after graduation, on the average, the "accelerates" as compared to the controls had obtained a significantly higher number of advanced degrees; and a significantly larger number of the accelerates were working after having been married. A slightly higher per cent of the non-accelerates were married, and a slightly higher per cent of the accelerates had been divorced; but these differences were small. Both groups participated to about the same degree in community activities. These studies led Flesher and Pressey to conclude that many students of ability can complete a four-year program in less time with no unfortunate consequences.

It is disheartening to note the rarity of studies such as those of Pressey and Flesher. Most experimental educational programs have been conducted with little or no regard for controlled measurement or evaluation of their effects. Accordingly, when such a program ends, there is usually no mechanism by which the experiences of the participants can be utilized in a systematic way to further the knowledge of educators and others involved in similar activities.

Pace (1954) reported on studies of alumni carried out in connection with a program of evaluation of general education at Syracuse University. A questionnaire was filled out by a "fairly representative group of 2,500 Syracuse graduates from the classes of '47, '42, '37, '32, '27, '17, and '07." This questionnaire contained a series of sub-tests designed "to measure the extent to which alumni engaged in various activities relate to the broad fields of social science, [illegible] the extent to which the ideas of alumni about politics, art, literature, and science corresponded "to the concepts and points of view which are widely shared by experts in the various subjects."

Pace had the following to say about the results of this questionnaire study.

"Graduates of Liberal Arts exhibit a more balanced picture of interest and attitudes than do graduates of the professional and technical schools. They are more active participants in a larger number of fields, and their few low scores on the various scales are not as low as the low scores of graduates of the professional and technical schools. It is possible, of course, that a similar pattern existed at the time these men and women entered the University. Whether the graduates were like this in the beginning or whether college was entirely responsible for making them this way is not the basic question. The simple descriptive fact is that these differences exist and that they correspond fairly well to the differences in academic emphasis between liberal and general education on the one hand, and professional and technical education on the other. We cannot say that the particular pattern of adult behavior was caused by the particular pattern of academic curriculum, but it has surely been influenced by it. *College* *does make a difference; and the particular kind of college education also makes a difference."* (Pace, 1954) -

As Bereiter and Freedman (1962) indicate, the matter of the determinants of differences among seniors in different majors or among alumni of various kinds of colleges or courses of study is a complex issue requiring much empirical study. In some cases the differences that exist among seniors seem primarily to be functions of qualities already present in the students as freshmen rather than products of different courses df study. In other cases differences among upperclassmen seem to reflect the differential influences of courses and major fields.

In any event, Pace's studies of Syracuse alumni confirm the findings of the *Time* magazine survey of 1947. In that study it was noted that those alumni in the professions or in business who had had general rather than technical or preprofessional schooling as undergraduates were described as the more "active and interested citizens." This finding held true when graduates of the two kinds of undergraduate training within the same college were compared and also when graduates of Big Ten and Ivy League colleges were compared with alumni of technical schools. Although Ivy League and Big Ten alumni did not differ from one another in amount of political activity, they were both found to be more active than alumni of technical colleges. Pace (1949) considered that these results lent support to the view that specialized education should be preceded by some form of more general education.

The data from the 1947 *Time* survey were utilized by Flasse (1951) in sttdying the relationships between achievement in college and in later life. The college characteristics involved in the study were scholarship, leadership in campus organizations, self-support, and satisfaction with college life. These were compared with the following factors in post-college life: home and family life, social activity (clubs and organizations), economic status, information (chiefly magazine reading), and civic participation.

Flasse found that over the entire range of subjects the relationships between the college and adult measures were largely insignificant. However, some significant relationships were obtained when groups high and low on various of the characteristics involved were compared, ignoring the individuals falling in the middle ranges. The college characteristic most broadly associated with the various indices of adult status was leadership in campus organizations. The group high on this quality as undergraduates displayed greater achievement as alumni than those who were low. Second among the college characteristics in degree of association with alumni achievement was the extent of reported satisfaction with the college years. Undergraduate scholarship was but little related to alumni achievement.

Bridgman (1930), however, has reported a study in which undergraduate grades were related to success in a career with the Bell Telephone System. Campus achievement—for example, leadership in various activities—was significantly related to later success as well, but scholarship was the best single index. The criterion of success in business utilized by him was salary weighted by years of service. Havemann and West (1952) reported that grades were related to financial success in all fields *except* business, and Bridgman's findings serve to point up the exceptions often involved in such generalizations.

Probably the most complex and yet systematic analysis of undergraduate characteristics and their relationships to activities subsequent to graduation was carried out by Brown (1956, 1962). The subjects involved were the 50 Vassar College alumnae of the classes of 1929-35 mentioned earlier. On the basis of their retrospective accounts of what they were like as students and on the basis of available college records these women were rated on seven variables pertaining to behavior and experience in college. A coding procedure utilizing these variables produced five general educational patterns which tie together much otherwise diverse information and provide a much broadened context for evaluating undergraduate experiences and behavior.

The complexity of the matter of grades or academic performance is very clearly pointed up by this system. For example, the women in both the Social and Peer-Group Orientation and the Under-Achievers with Family-Orientation patterns of alumnae received approximately the same grades as undergraduates. Yet at the time of the study in 1954, there were rather clear intellectual differences between the two groups. It was evident that the women comprising the Social and Peer-Group Orientation category had developed little since their college years. Their interests were fairly narrow, their general intellectual and cultural development since graduation rather limited. The Under-Achievers with Family Orientation were quite different, however. It was evident that the processes of learning or broadening of outlook had not terminated or even slowed down markedly after college. Intellectually these women were alive and eager, their interests and activities spanning a very wide range. It seems apparent that the educative process of the college years held quite different meanings for the two groups. For the women labelled Social and Peer-Group Orientation, academic activities proper were probably regarded as relatively external obligations to be fulfilled. The Under-Achievers with Family Orientation were by no means hard-working students as such, but their lives and activities subsequent to college conveyed the impression that the qualities of a liberally-educated person had become an intrinsic part of their personality and general outlook.

A similar kind of phenomenon is revealed by comparison of the Over-Achievers and the High Achievers. The women in both of these groups received high grades as undergraduates; yet, the two groups differed considerably, when they were studied in 1954. Like the women in the Social and Peer-Group Orientation pattern, the Over-Achievers pretty much left the world of scholarship and intellect behind them after graduation. This was not the case with the High Achievers, whose intellectual growth continued after the college years, although perhaps in narrower ways than was characteristic of the Under-Achievers with Family Orientation.

The above discussion illustrates the value of studying educational patterns such as those devised by Brown. Events of the college years may be seen from the vantage point of years of perspective—in this case some 20 years after graduation. It becomes evident that apparently equivalent academic achievement or scholarship among various students may have very different meanings for these students and very different implications for the future. Clearly there is a great need for such enlargement of the context within which students and their achievements are viewed.

The Mellon Foundation Interview Studies of Vassar College Alumnae

The quantitative studies reported in the previous section may now be supplemented by interview studies, which have greater flexibility and allow more opportunity for exploration.

In addition to the 50 Vassar College alumnae of the classes of 1929-35, the Mellon Foundation staff interviewed 40 alumnae of the classes of 1954, 1955, and 1956, after they had been out of college three or four years. Since these women were volunteers, who responded to invitations to be studied and interviewed, they cannot be assumed to be representative of their fellow alumnae in each class. It is likely, however, that the great majority of patterns of life and modes of thought characteristic of Vassar College alumnae in general may be found among the subjects who were interviewed, although generalizations about the frequency with which these patterns may be met among the alumnae at large are dubious.

Most of the young alumnae were getting on very well. Whatever their state, whether married or single, whether in graduate or professional school or at work, whether a housewife, working outside the home, or both, most of these young alumnae were distinguished by competence, flexibility, and efficiency; and most of them reported that they were at least reasonably satisfied with their lot in life. This picture is in keeping with test results, which revealed this group of alumnae to be more stable, optimistic, and content than they were as seniors.

Nowadays some 70 per cent of an alumnae class are married by three or four years after graduation. An indication of the pressures toward marriage that exist among alumnae in the years immediately after graduation was provided in the account given by one of the alumnae of her roommate group, consisting of six seniors. "Only one of us had plans for marrying after graduation, but all of us were married within fourteen months."

By and large the marriages of these young alumnae were distinguished by their stability and general "conventionality." The husbands were working hard in their careers, and the women were hard at work helping their husbands in whatever ways they could, and in running the household or caring for the children. There were exceptions to these generalizations, of course, and some of these will be presented later, but by and large the marriages as described seemed reasonably free of disaffection and tension. The rather commonly accepted notion of the specter of Satan stalking our upper-middle class suburbs in the form of alcoholism, adultery, loneliness, and feelings of lack of fulfillment of one sort or another did not seem at all appropriate. Do such difficulties manifest themselves in later life? Or are these not really true of the lives of most of the women who attend colleges like Vassar? Judging from the alumnae of the classes of 1929-35 who were studied in 1954 and extrapolating from the current lives of the younger alumnae, the latter seems to be the case.

The alumnae who were attending graduate or professional schools displayed a rather impressive picture of accomplishment. For the most part these students found the academic demands made upon them to be no greater than those to which they had been accustomed as undergraduates; in some cases the work was even a bit easier. Moreover, these women had learned that academic competition with men presented no great difficulty.

The accomplishments of those students who had gone to work immediately or shortly after college were equally impressive. In many cases they started out in fairly unimportant positions, but in a reasonably short time, a year or two perhaps, they had worked into positions of some prominence and responsibility. Employers, it seems, are fairly quick to recognize intelligence, diligence, and good work habits.

In many cases it appears that these alumnae had enjoyed a sense of accomplishment after graduation, in additional schooling or at work, that they did not experience as undergraduates. To some extent this may have been a function of lessened competition. At Vassar College they were in a sense competing academically with many other intelligent and studious girls. After graduation, it is likely that the degree of competition was not nearly so keen. Many of the married alumnae reported a similar kind of experience as a consequence of participation in various community activities, for example, the League of Women Voters. For the most part they found themselves able to handle with dispatch the demands made upon them.

An interviewer cannot help wondering whether many of these alumnae would not have benefited by experiencing this sense of accomplishment during their undergraduate years rather than afterwards. Doubtless their lives before graduation would have been enriched thereby, perhaps contributing to greater achievement both during and after college. It does not appear that stern competition is the sole cause of this relative lack of a sense of accomplishment during the school years. To some extent it appears that academic procedures often reinforce feelings of guilt instead of fostering feelings of competence and adequacy in students, perhaps particularly in college women who usually are anxious to please and to do the right thing. An assignment well done may not be a source of satisfaction to a student who is very much impressed by what she does not know and what she could have done better. Feelings of inadequacy rather than a sense of mastery may predominate at the expense of freedom and experimentation in the approach to academic work. No one wishes to range himself on the side of opposition to high standards, but one cannot help wondering whether the emphasis on excellence that is so powerful an influence in academic circles these days may not serve, at least in the case of many women college students, to reinforce feelings of guilt and inadequacy rather than to stimulate outstanding performance or achievement. Perhaps increased recognition of achievement at intermediate levels and not solely at the highest levels of accomplishment would help to reconcile an emphasis on high standards with feelings of competence and mastery in a large number of students.

[illegible] adaptable in adjusting to the world as they found it. Few were attempting to remake the world or American life. Perhaps this was nowhere more evident than in their attitude toward the role of educated women in our society—a role that is still ill-defined. The very weight of the body of literature on this problem attests to its prominence and importance. To cite but a few of the individuals who have written on this subject we may note literary figures, such as Simone de Beauvoir (1953), Sonya Rudikoff (1956), and Virginia Woolf (1935, 1938) and social scientists, such as Marie Jahoda and Joan Havel (1953), Florence Kluckhohn (1952), Mirra Komarovsky (1946, 1950, 1953), Margaret Mead (1949), Mabel Newcomer (1959), Riesman (1956), and Sanford (1958). These writings make it abundantly clear that American society is rather a long way from providing a means whereby an educated woman may combine with relatively little conflict or effort the role of wife and mother with that of professional or career woman. Combining the two is not easy, and the literature offers much evidence that many women have felt a sense of lack of fulfillment in devoting themselves exclusively to one or the other of these roles. There seems to be considerable unanimity of opinion among these authorities that this is one area in which American society is in need of substantial reform.

Yet, with a few exceptions to be noted later, one would hardly conclude on the basis of the interviews with the younger alumnae that a problem of this kind existed. These women were quite disposed to attune their lives to those of their husbands. The husband's career and the family unit took precedence over any ambitions or aspirations they themselves may have had. And these adjustments were made with a minimum of conflict or feeling of sacrifice. Certainly the manifest conflicts of the feminist era were a pretty dead issue among the young alumnae. (Bushnell and Freedman, 1959)

In recent years much emphasis has been placed upon the problem of the middle-aged educated woman. With early marriages and labor-saving devices in the home, a housewife is likely to have some 20 or 30 years of relative freedom, after the children have reached an age of at least partial self-sufficiency. Considerable attention has been given to consideration of ways in which these years can be made personally rewarding and socially productive. Much has been written on this matter, and it forms a prominent part of conferences and discussions of the roles of educated women in our society.

The period of early middle-age has long been regarded by psychiatrists as rather a dangerous time in the lives of educated women. Apparently these physicians frequently have occasion to see such women enter into depressions or other kinds of emotional or psychological disorder some time around age 40 or 45. If psychiatrists are present during discussions of personality development during college and afterwards, one of their first remarks is likely to be: "What about the middle-aged college women in mental hospitals?" The inference, of course, is that perhaps something could have been done during the college years to prevent such difficulty in later life.

The study of the 50 Vassar College alumnae of the classes of 1929-35 revealed a number of instances in which women who had previously appeared to be quite stable emotionally had experienced or were then experiencing some sort of personality difficulty. In such cases it seemed that these women had built their lives around various forms of external definition, that is, school and college, marriage, then children. These were the things that everyone did, and they kept one very busy for a while. However, rather suddenly, when the youngest child entered adolescence, one was no longer very much needed—at least not in the physical and material way in which one had been needed previously. On this occasion many women found themselves thrown back upon their own resources for the first time in their lives. With no external guide-posts to provide continuity and order, they were facing emotional or psychological difficulties which had been better dealt with at an earlier age.

Many of the younger alumnae, very busy as they were with jobs and families, seemed similar to what some of the older alumnae must have been like about 15 or 20 years earlier. The question arises, however, as to whether, in view of the attention and publicity given of late to the problems of educated women in middle age, the younger alumnae were giving much thought to their lives about 20 years hence.

Perhaps surprisingly, the matter of what life will be like in 15 or 20 years seemed to occupy but a small place in the thinking of most of the young alumnae. Of course, the situation was somewhat different for those alumnae with major professional or career commitments. These women were ready to remain in the home, when the children were small. They wished, however, to resume their careers, when their family commitments made this possible. On the other hand, the majority of alumnae who had no strong involvements outside of the home and family were but little concerned with the long-range future. They were very busy with their daily and monthly rounds of activities, and they gave the impression that they felt that the future would take care of itself.

It is interesting to observe that there was even less concern with the prospective activities of middle-age among the younger alumnae than undergraduates display. Probably as a result of the many discussions, conferences, books, and articles about the roles of educated women in our society, the undergraduates have been stimulated to think in long-range terms when considering the "afterlife." Very likely the younger alumnae were just too busy to be concerned with making plans for 20 years hence.

Differences in Educational Patterns between Younger and Older Alumnae. The 40 alumnae of the classes of 1954, 1955, and 1956 may be considered in terms of the five educational patterns described by Brown (1956, 1962). This will provide an opportunity for comparison of student life in the mid-1950's with that in the period 1929-35.

What seems striking is the lack of clarity of the educational patterns of the younger as compared to the older alumnae. Although essentially the same patterns may be discerned among the younger alumnae, the boundaries separating one from another are somewhat blurred. For example, those who exhibit the Social and Peer-Group Orientation pattern were clearly better students as undergraduates than were their counterparts of a generation ago. Apparently it was once possible to "squeak through" Vassar College, living from one prom or social event to another and doing almost nothing academically. These days few students of such bent are admitted in the first place, and the few who are do not remain very long.

Also it seems that the Over-Achievers are less distinctive now. These were students of no marked intellectual or academic abilities who nevertheless obtained rather high grades by dint of diligence and docility. In rather narrow and uncreative fashion they labored at discerning what was wanted of them and then managed to perform these tasks to the satisfaction of their teachers. At the present time such unoriginal or dependent performance is likely to yield passing or moderately good grades but probably not very high ones. It appears that the patterns of Social and Peer-Group Orientation and Over-Achievement blend now. What we have is an adequate student of no marked intellectual predisposition who engages in a reasonably active social life without going overboard on this score and who anticipates a fairly early marriage.

Similarly, the patterns of Under-Achievers with Family Orientation and High-Achievers blend at the present time. This is a consequence of two trends. On the one hand there is improved academic performance on the part of the Under-Achievers with Family Orientation. In fact, under-achievement is not really characteristic of these students at the present time, the College being better able to stimulate such students academically. And on the other hand the High-Achievers are no longer distinguished, as they were around 1930, by a considerable likelihood of remaining single. A generation ago commitment on the part of a woman to the values of an intellectual life or to a profession or career carried with it a more or less explicit assumption that marriage might thereby be precluded. Nowadays, almost all Vassar students expect that they will marry.

The above discussion indicates that in many ways Vassar College is a more adequate institution "academically" than it was a generation ago. Fewer current students are preoccupied with social activities to the exclusion of intellectual interests, and a higher proportion of the gifted students are stimulated to achievement that accords with their abilities. To this extent, the blurring of the more distinctive patterns of a generation ago may be regarded as a step forward intellectually.

But this clouding of the boundaries of the educational patterns has an obverse side as well. No longer does there seem to be a group of students on the order of some of the High-Achievers of the classes of 1929-35, for whom the intellectual or academic life was all. Almost non-existent today are students like those among the older alumnae who skipped lunch so that they could have more time to spend in the library, or those who went through four years of college without a date and hardly felt that they were missing anything because their studies were so fascinating. The most dedicated of current students are likely to lead balanced lives and to have their share of recreation and social life. Just as the increasing homogeneity of our society has delimited ethnic and regional differences, so it may be observed that the current educational patterns within student society are less sharply distinguished.

Consistent with this trend a difference may be noted in the characteristics that enter into the pattern of Seekers of Identity. Among the older alumnae a Seeker of Identity was often a student for whom Vassar College was an experience very different from her prior life because of factors associated with social class. She may have come from a lower-middle-class or perhaps even a lower-class background, and accordingly the upper-middle-class world of Vassar College presented, perhaps, a very different and in some cases trying experience. Or she may have had a rigorous upper-class upbringing somewhat after the fashion of Victorian England, thereby finding herself quite ill-equipped for the freedom and independence of student life at Vassar College. The lowering of class barriers in current American life is reflected in the younger alumnae who seem to belong to the Seekers of Identity pattern. These women are likely to be characterized as Seekers of Identity for reasons of conflict within the personality rather than because of discontinuities related to social class origins. Differences in surface characteristics and behavior among current Vassar College students tend to be relatively independent of social class origin. Not that social class differences are non-existent. They are more subtle, however, than they were a generation ago.

Attitudes toward the College Experience. Vassar College alumnae are in general much like the alumni described by Havemann and West (1952). They believe that college was a very valuable experience, and most of them would go to Vassar College again, could they relive their lives. A substantial number, however, would choose a different major were they again attending college. Unlike the alumni in Havemann and West's (1952) sample there is no disagreement about the matter of general versus specialized education. Vassar College alumnae are almost unanimous in their belief that the best type of undergraduate education consists in liberal arts as opposed to a more specialized kind of training.

Interviews with the alumnae of the classes of 1929 to 1935 revealed that few of them, when queried about the academic aspects of their college years, referred to the content of their courses. What they remembered best were various faculty members—usually charismatic figures who had made a deep impression. These were faculty members who had somehow impinged upon the alumnae in a personal way; they had aroused emotional responses of one kind or another—sometimes pleasant, sometimes unpleasant. Some alumnae best remembered teachers who had been sources of inspiration. Some teachers were remembered because they had been kind, helpful, or sympathetic. Others were recalled because of powerful negative experiences involving sarcasm, rejection, and the like.

The members of the research staff assumed that the almost total lack of reference to the content of college courses in the recollections of the older alumnae was pretty much a function of the considerable passage of time since graduation—some 20 years. Rather surprisingly, however, it developed that the situation was very similar in the case of the younger alumnae. One of the interviewers of the younger alumnae had the following to say about his interviews: "My interviewees referred little or not at all to the contents of the courses. Such references as there were, were to interpersonal factors, such as an instructor's sarcasms. Now offhand in an interview of the type we gave one might expect such references as: 'Professor X's theory sounded plausible then, but I have since changed my mind.' I mean the sort of statements that are quite common among graduate students. Reading my own interviews and those of the other interviewers has been a quite chastening experience for me as to the role of the classroom in a student's life in later years." Along these lines it is interesting to note that Jencks and Riesman (1962) refer as follows to a research carried out by Whitla of the Office of Tests of Harvard University. "In his study of the Class of '52, done five years after graduation, Dr. Whitla found that few graduates of moderate academic attainment recalled their tutors as important influences; more recalled famous professors."

Attitudes toward Parents. White (1952) has remarked concerning the attitudes of young adult women to their parents: "She exhibits a trend quite common in the twenties, toward detachment and frank appraisal." The interviews with the younger alumnae seemed to reveal this same trend. By virtue of such experiences as increased independence—financial and otherwise—marriage, or their own motherhood, the majority of these women seemed to have settled into a position of increased understanding of their mothers.

Tying in this information with the testing and interviewing of Vassar College undergraduates, we see a long-term trend in attitudes toward their mothers somewhat as follows. Before college the students are quite submissive and respectful. College brings "rebellious independence," skepticism, perhaps some condemnation. In the early post-college years these tendencies toward either compliance or rebellion are replaced by more realistic evaluation and generally increased understanding.

Patterns of attitudes toward their fathers are generally similar. Students at Vassar, however, have somewhat less critical and independent attitudes toward their fathers than toward their mothers. And the post-college years seem characterized by somewhat less understanding of their fathers and less closeness with them. Perhaps this possible difference in attitudes to parents is a function of the fact that in general Vassar College students seem to be rather more strongly oriented to their mothers than to their fathers. To some extent, this may be a fairly common difference between students who go to women's colleges and those of comparable intellectual background and academic motivation who attend coeducational colleges.

Some Important Issues of the Early Post-Graduate Years as Illustrated by Individual Alumnae of the Classes of 1954, 1955, and 1956

There follow a number of brief discussions of kinds of development or ways of dealing with issues or problems that were displayed by some of the young alumnae who were interviewed by the Mellon Foundation research staff. Not in all cases but to some extent we shall focus upon sources of strain in these reports. In so doing we assume that these issues or problems are not confined to those alumnae who reveal them in manifest form but have some relevance for many if not a majority of the alumnae.

Marriage versus Career. While few people would deplore the demise of old-time feminism, in the sense of a woman's having to prove that she was as good as a man, some writers, Riesman (1956), for example, have pointed out that feminism was not without its "virtues." To some extent it provided an alternative to marriage, a way of life for a woman who was unsure as to whether she wanted to marry or at least was in no hurry to marry. Nowadays, as Riesman has pointed out, not marrying is regarded as more than perhaps a bit odd; it is considered to be almost the equivalent of a perversion of some kind.

Traces of the conflicts of feminism may be observed in current students and young alumnae. Thus, one of the alumnae of the Class of 1955, a graduate student at a prominent eastern university, expressed herself as follows: "I wonder if each year spent in graduate school is not putting marriage that much behind. Perhaps by going on in school I am unconsciously putting chances of marriage behind. I would like to marry, but it seems to me that most men want to marry less educated women who feed their egos. I will not buy this kind of relationship." Like the career-oriented women of a generation or more ago, the young woman in question will not sacrifice or compromise her intellectual or professional activities in order to increase her opportunities for marriage.

Although this problem is rare among the young alumnae of Vassar College, Douvan and Kaye's report on the ambitions of high school girls (1962) and casual observation indicate that it may not be so rare among young women in technical colleges or in less cosmopolitan areas of the United States. On a recent visit to a small women's liberal arts college in the Mid-West the writer was rather surprised to meet a number of students who were troubled because they wished to pursue careers after marriage (at least until children were born), while the men with whom they were involved objected to wives who worked.

It seems possible that we are dealing here with a conflict of generations. No doubt many of the mothers of present day Vassar girls were true feminists, whose styles of life are now regarded by their daughters as very much old hat. The mothers of girls in rural areas or of girls who want to go to technical colleges, on the other hand, were probably of a more traditional orientation and not often to be found among the nation's makers of opinion; accordingly, they left their daughters an open field in which to seek greater freedom for women.

More common than the determined feminist among our sample of young alumnae was the type of young woman who prepared for a career or actually entered a profession and then found herself pulling back, or compromising with the demands of the career, when it seemed that her chances of marriage were being too seriously threatened. An example is afforded by a graduate of the Class of 1954 who gave up a good position in a research laboratory and the immediate prospect of a Ph.D. in chemistry in order to return to her home community and so improve, as she thought, her prospects of marriage.

Then there are young women who become aware of the problem of marriage versus career only after they have married. So great are the pressures toward early marriage today that many college women seize their first opportunity, no matter how interesting their jobs or how bright their professional prospects. Some of them later experience a sense of self-betrayal. It turns out that they cared very much about "doing something on their own," as they put it, and now, with the nest becoming rapidly filled with babies, they wonder if they will ever get another chance to try their hand at demanding work outside the home. These are cases in which young people marry before achieving a sense of identity, in Erikson's (1959) sense of the term. This was a not uncommon occurrence among the young alumnae in our sample, and in some cases we were led to doubt that the marriage would survive.

The Problem of Achievement. It was our impression that in cases of dissatisfaction with marriage, or self-dissatisfaction in marriage, there was often a special kind of achievement motivation or, more specifically, an unfulfilled need for achievement. The young women in whom this phenomenon was most clearly to be observed had not done well in college. Indeed, it seemed that one of the main reasons why they were unable to postpone marriage was because their college experience had left them without a sense of competence or adequacy. But marriage did not solve the problem; the need for achievement, unfulfilled in college, continued as a strong motive.

The young woman of our sample in whom this phenomenon was most marked had left college at the end of her sophomore year in order to marry. Although very happy with her family and general situation, she keenly regretted not having got her degree. As a consequence she had taken some courses at a local college after her marriage but could not continue after the birth of her second child. She hoped, however, to finish the work required for her degree as soon as possible. This young alumna was also extremely active in community affairs despite three children, a very active social life, and minimal domestic help, because she considered that such activity was an obligation that could not be evaded. Although her parents were by no means affluent, she thought that she had had many advantages, her two years at Vassar perhaps being the greatest of these. And these privileges imposed upon her an obligation to return something to society in the form of useful services to the community.

This young woman conveyed the impression of someone who had assumed the identify of a Vassar College alumna with all the demands of the role as she saw them. This identity was particularly strong, however, perhaps out of feelings of guilt engendered by failing to complete her undergraduate work. In any case, it appears that some lack of fulfillment in her undergraduate career persisted, demanding of her that she be a kind of *ne plus ultra* among Vassar College alumnae.

In contrast, there are young women in whose cases college seems to have offered too much in the way of satisfaction of achievement motives. There were among our sample of alumnae unusually able young women who had been brilliantly successful in college, receiving much recognition from faculty and fellow students alike, but who, four years after graduation, had been unable either to marry or to settle down to productive work. It was as if nothing in the "real" world could match the luster of the college years. Like the hero of Irwin Shaw's (1950) story, "The Eighty Yard Run," some of these women seemed fixed upon the adulation experienced in college and unwilling or unable to enter into activities that did not guarantee the same kind of success.

The Problem of Continued Growth. As indicated above, the majority of the young alumnae who were interviewed had married and were getting along quite well. They reported few difficulties or strains and their test scores showed that, as compared with their status as seniors, they were relatively stable emotionally and free of anxiety. There was one flaw in this picture, and that is the suggestion that personality growth may have stopped. We have interpreted the "upset" condition of seniors as a sign that perhaps development was occurring or about to occur, and, according to Sanford (1962), the situation of the freshman was considered as a "developmental crisis." What will induce further growth in the young married woman who spends virtually all of her time in blissful domesticity? The question was sharpened for us by the presence in our sample of young women in whom stability and contentment somehow seemed excessive. For example, there was a graduate of the Class of 1954 who had been married for four years and had two sons. She was married to a poultry farmer, and as she put it had "settled into a small town routine." When asked whether she felt any obligation to pursue activities outside of the home as a consequence of her education, she replied as follows: "No, I don't. I think the reason for this is that I am so seldom reminded—actively—that I've had the education. In other words, I don't see the people, you know, who've had educations, who expect anything of me. Sometimes, though, it does pass through my mind. I wonder if I am making use of it well enough, and then I think about it. I think my general attitude is that I've been broadened by my education; and right now there is really nothing concrete I can do, because I do feel so strongly that my place is in the home."

Again, there was a young woman of the same graduating class who came from a social register family and was living with her husband and daughter in an elegant apartment in New York City. She said she "couldn't be happier" and that "things were going along without a hitch." When asked what she thought college had contributed to her current life she replied as follows. "The different interests it opened—some things I wish I had more time for now. It made me much more curious, taught me how to study." And then she added, "I don't know how it affects my life at the moment."

Most Vassar graduates are happy to be consumed for the most part by the demands of home and family, at least for the time being. But often there is some sense of dissatisfaction, some concern that their education ought to be put to nobler use. The striking thing about the present two cases was the absence of such feelings. No one would begrudge these young women their contentment; and it must be granted that they were excellent mothers; but it is difficult to accept their complacency. Given the present condition of our society and of the world it seems that we have the right to expect more of our most intelligent and best educated women than that they achieve stability and contribute to the population explosion. But this may not be the worst of it. Both of the young women just described were almost apolitical, and there was nothing to suggest that ideologically or intellectually they were more developed than they had been as college students. It would seem that the college has failed in these two cases to achieve the educational aim of generating a capacity for continued growth. Still, these women were quite young when interviewed, and it is possible that time may bring a depth and complexity of personality that we do not now see.

Contrasting with these two cases are those young women who during their first four or five years after college have rich and varied experiences and seem to gain as much developmentally as they did during the four years of college. An example of this pattern is afforded by a member of the class of 1956. Unlike most of her classmates, she had not experienced any real growth in independence from her parents during her college years. When she decided to marry into another Protestant sect, after being out of college for a year, much conflict with them developed. She considered that this discord had been basically a salutary thing in that it had led to increased understanding and mutual respect between her and her parents.

Not only had her religious views changed radically in the three years following graduation, but her political views had changed as well. In the course of moving about with her husband, a graduate student who had changed schools, and helping to support him, she had worked as a secretary, a retail sales clerk, a radio announcer, and an assistant in a nursery school. These working experiences had taught her much about people and about other ways of life.

This young alumna had majored in sociology and had contemplated going on to graduate school and becoming a professional social worker. She was working and saving money toward this end during the first year after graduation, when she met her future husband and married. After marriage she became interested in writing, both poetry and prose, and she had had some commercial success in her writing ventures, having sold two short stories. At the time of the interview she was pregnant with her first child. As compared to the two women discussed above, this subject's alumnae years involved her in as much if not more new experience than her undergraduate years. Much of this was the result of her marriage, the ideas of her husband to which she had been exposed, which were new ones for her, the people she met through him, the different places in which they lived together, the jobs she had in helping to support the family; some of them being kinds of work she would not have undertaken voluntarily had not economic necessity forced them upon her. All this serves to illustrate the importance of the marriage or the husband in shaping the development of the alumnae. Since most of the married alumnae orient their lives to what is most helpful or useful to their husbands, the kinds of men they marry and the kinds of lives these men lead are often the chief determinant of what happens to them in the alumnae years. We wonder, then, whether this young alumna would be living a life as continuous with her college years and previous life as that of the two women just discussed, had she married a different sort of man. Or to what extent was her choice of a husband a motivated expression of a desire to change? Much additional research will be needed to answer complex questions like these.

Conclusion

We learn from Webster et al. (1962) that considerable personality change takes place during the college years. Changes in mental ability and functioning, in attitudes and opinions, and in other qualities of personality—for example, authoritarianism and impulse expression—take place in this period.

We may conceive of seniors as being more developed, more complex than freshmen. They are less bland, more aware of themselves and their surroundings, more flexible, more open to new experience. At least this seems to be true of women who have attended women's liberal arts colleges. In this sense one is tempted to say that college seniors are now ready to be educated. The resistance to new experiences characteristic of so many freshmen has been dissolved—or at least inroads have been made into it.

One may ask what these qualities in seniors imply for the future. Do we see in alumnae some form of integration of the personality at a higher level of complexity than we find in seniors? Our test findings reveal no important changes in qualities of personality in the period three and four years after graduation, except that alumnae are more stable or less neurotic than they were as seniors. It may be, however, that this finding is a function of our testing of alumnae with scales and measures designed originally to illuminate changes during the college years. In some cases our interview studies reveal that such alteration in personality characteristics has occurred after graduation. Possibly tests developed expressly to tap changes in the years after college would reveal in systematic fashion modifications in qualities of personality that are not now apparent.

Perhaps what stands out more than anything else in the Mellon Foundation's studies of alumnae is the complexity of the relationships between events of the college years and later life. Generalizations about such things as the qualities of college alumni as compared to other people, or college graduates of different ages, or graduates of one kind of college as compared to those of another can be made fairly readily. But this is not the case when we attempt to relate experiences of the college years in some systematic way to occurrences thereafter. What we find here is considerable confusion. One student who is graduated with honors goes on to do well in graduate school. Her classmate, who also is graduated with honors, is a failure academically in graduate school. The *Family-Oriented-Under-Achievers* are most alert and alive intellectually twenty years after graduation. The *Family-Oriented-Over-Achievers*, the better students in a formal scholastic sense, have stagnated intellectually. And so for other educational patterns.

It is obvious that there is a pressing need for additional research on the relationships between experiences in the college years and personality characteristics in later life. Consideration of educational objectives involves more than asking what characteristics we wish to foster in students and how we go about doing this. We must inquire in addition about the persistence of these qualities after college. Ideally, college experience must be viewed from a developmental point of view that encompasses the whole life span.

D. Liberalism versus Attitude Sophistication in College Women

The doubt has been expressed by previous writers that what passes for liberalism in college students may often be only sophistication or a "collegiate veneer" (Bereiter & Freedman, 1962; Jacob, 1957; Loevinger, 1959; Cohn, 1957) and, conversely, that what is identified as authoritarianism may often be only naivete (Carey, Rogon & Farrell, 1957; Gregory, 1957; Harris & Bereiter, 1959).

As part of a larger factor-analytic study of the Vassar Attitude Inventory scales (Bereiter, 1960), variables were introduced to test for the existence of separate liberalism and sophistication factors.

The relevant Vassar scales are Social Maturity and Developmental Status, Social Maturity is a scale developed with the California F scale as a criterion, and scored so as to measure *non*-authoritarianism (see Webster, Sanford, & Freedman, 1955, for report on the F$_1$ scale, which is identical to Social Maturity except for direction of scoring). Developmental Status is a scale built out of items found to discriminate significantly between Vassar College seniors and freshmen and scored in the direction favored by seniors. It measures the first principal component of these items, which has been identified as "rebellious independence" (Webster, 1958). The content of these two scales, consisting of 147 and 72 true-false items respectively, covers most of what is generally represented in inventory measures of liberalism.

It was hypothesized, however, that the variance of these scales would be accounted for by two distinct liberalism factors: one, a kind of liberalism that would be characterized by such adjectives as "active," "responsible," "deeply felt," and "integrated into the personality"; the other, characterized by such adjectives as "superficial," "verbal," "irresponsible," and "intellectualized." It was expected that Social Maturity and Developmental Status would have substantial loadings on both factors, but that their largest loadings would be on the latter factor, which we shall call Attitude Sophistication. It was further predicted that Developmental Status, being more concerned with rebellious and conspicuously unconventional attitudes, would have a higher loading on this factor than would Social Maturity, but that on the other factor, which we shall call Liberalism, Social Maturity would have the higher loading.

The following additional distinctions between the two factors were hypothesized:

(1) In contrast to the verbal measures mentioned above, more overt indicators of liberalism versus conservatism, such as voting behavior and religious practices, would correlate more highly with the Liberalism factor. The closest we could come to overt indices of liberalism were data on biographical information blanks which Ss filled out at the time of testing, concerning political and religious preferences. A two-point scale was used, scoring one point if S listed her political preference as "Democrat," "Liberal," or (if both parents were listed as Republicans) "Independent." The other point was given for listing religious preference as "None," "Agnostic," "Doubtful," etc.

(2) Liberalism would be associated with a respect for lawful conduct and willingness to perform civic duties, whereas Attitude Sophistication would be associated with contempt for such things. The Responsibility scale of the California Psychological Inventory was included to test this hypothesis. Its item content is largely in this area, and scores on Responsibility have been found to correlate positively with ratings on intellectual competence, integrity and responsibility, and fairmindedness (Gough, 1954).

(3) In college students Sophistication, as opposed to Liberalism, would be associated with unresolved conflicts with parents. This hypothesis stemmed from the view that superficial liberalism in college students may be a way of

rebelling against conservative parents whereas genuine liberalism involves more positive motives. This hypothesis was tested by Rebellion Against Parental Authority, a four-item scale based on the student's use of the adjectives "oversolicitous," "domineering," "possessive," and "nagging," in describing her parents on an adjective check-list.

(4) Sophistication would be related to a more general and pervasive tendency toward skepticism and relativism. This hypothesis took the form of a prediction that the Sophistication factor would be negatively correlated with the Uncritical Generalization scale.

Uncritical Generalization grew out of an experiment to see whether a reliable measure of acquiescent response set could be constructed that was uncorrelated with another reliable measure of acquiescent response set, Repression or Suppression (Webster, 1961). It was developed out of a 100-adjective check-list on which Ss described the "average" woman. The same method of scale development was used as that employed by Webster (1961), with the additional requirement that the items have correlations not exceeding ±.15 with Repression or Suppression. The final version of the scale contained 49 items, all but five of which were scored true. Its correlation with Repression or Suppression in a sample of 249 Ss was .11.

Examination of the item content, especially with regard to the five negatively scored items, suggested that something more than simple acquiescence was involved in the scale. The bulk of the positively scored items were mildly favorable adjectives: e.g., "always smiling and pleasant," "forceful," "humble," "self-confident," "trusting," and "warm." The five negatively scored items were "critical of others," "impatient," "selfish," "snobbish," and "sometimes disrespectful." It appeared that a high score on the scale, beyond reflecting a tendency to say "yes," also represented a tendency indiscriminately to attribute all favorable characteristics to the average woman, regardless of the rarity of these traits. Low scores seemed to indicate a tendency to ascribe fewer traits to the average woman, hence to resist over-generalization, and also to present a less uniformly favorable description of her.

(5) Closely related to the above was the prediction that Sophistication would be negatively related to simple acquiescent response set. This was measured by Adjective Checking, a variable based on the same check list of adjectives describing parents as that used for the Rebellion Against Parental Authority scale mentioned above. The score was simply the total number, out of a possible thirty, of adjectives checked. These adjectives were about evenly divided between favorable and unfavorable ones.

An eighth variable will be described which had not been hypothesized to have any bearing on the Sophistication-Liberalism distinction, but which did to a remarkable extent. This was the variable labeled Visits Psychiatrist, which assigned a score of one to Ss who had visited the college psychiatrist at least once during their four years of college and a score of zero to those who had not. Approximately a third of the Ss used in the study had visited the psychiatrist.

Nine other variables, intended to test other sorts of hypotheses, were included in the analysis.

Procedure

Complete data were available for 249 women from one Vassar College graduating class. All scores except that for Liberalism were based on freshman data. Senior scores were used for Liberalism because the freshman scores were so low as to have insufficient variance. Product-moment correlations were calculated among the variables, except that biserial correlations were used between Visits Psychiatrist and the other variables. Two iterations of a centroid factor analysis yielded six factors. After orthogonal graphic rotations, four non-trivial factors remained.

Results

The first two factors, which will not be discussed in this paper, were identified as Impulse Expression and Sense of Social and Emotional Well-Being. Factors III and IV and the variables that had or were predicted to have significant loadings on them are presented in Table 1. Factor III closely resembles the hypothesized Attitude Sophistication factor and Factor IV resembles the Liberalism factor. The only hypothesis, in fact, that was not borne out was the one concerning Rebellion Against Parental Authority. Instead of loading Sophistication, it had negligible loadings on both the factors in question and had its only significant loading (.34) on the Impulse Expression factor.

The differences in loadings between Developmental Status and Social Maturity, though in the hypothesized direction, are very slight. What is more noteworthy is that, as hypothesized, they both have considerably higher loadings on the Sophistication factor than they do on Liberalism. In addition to their loadings on Factors III and IV, Developmental Status had a loading of .55 on Impulse Expression and Social Maturity had a loading of .36 on Sense of Social and Emotional Well-Being. The loadings of Responsibility on Factors III and IV are of sufficient size to provide some support for the hypothesized distinction between Sophistication and Liberalism with regard to Responsibility, but its largest loading was one of -.50 on Impulse Expression, which suggests that Responsibility has a substantial docility or conventionality component. The loading of Visits Psychiatrist on Liberalism was quite unexpected. It had a loading of only -.17 on the Sense of Social and Emotional Well-Being factor which it had been predicted to load.

Adjective Checking and Uncritical Generalization proved to have little communality in this analysis, although what there was was accounted for in the hypothesized way. As a further check on the relation of acquiescent response set to the factors, a technique due to Messick and Jackson (1961) was employed, correlating the factor loadings of variables with the percentages of items scored true on the variables. Using rank-order correlations over 13 variables, Sophistication correlated -.56 with acquiescence, while Liberalism correlated -.27 with it (a smaller correlation than that between acquiescence and any of the other non-trivial factors).

Discussion

Within the limits of the cogency of the variables employed, distinct factors of Liberalism and Attitude Sophistication have been identified. Attitude Sophistication emerges as a tendency to give verbal expression to liberal attitudes. Associated with it is skepticism, non-acquiescence, and a tendency

Table 3

Loadings on Two Orthogonal Liberalism Factors

(N = 249 women college undergraduates)

Variables	Factors III	Factors IV
1. Social Maturity	.63	.44
2. Developmental Status	.65	.36
3. Liberalism	.00	.57
4. Responsibility	-.22	.26
5. Rebellion Against Parental Authority	.03	.10
6. Uncritical Generalization	-.30	-.14
7. Adjective Checking	-.39	.03
8. Visits Psychiatrist	-.05	.53

to reject civic responsibility. The hypothesized relation between Attitude Sophistication and rebellion against parents was not borne out by the results. Liberalism is less determined by verbalized attitudes, more by overt behavior. It is associated with acceptance of civic responsibility and is not related to acquiescent response set.

The puzzler, however, is the connection between Liberalism and visiting the college psychiatrist. The psychiatrist in question, Dr. Robert E. Nixon, has published an article on the Vassar students who see him that suggests a basis for such a connection. He describes these students as "articulate, open, intelligent adolescents, presumably psychologically normal." They differ from other kinds of students not in the kind or severity of the problems they encounter but rather in their openness to them and by their efforts to solve them through the active pursuit of self-knowledge rather than through reactive or repressive behavior (Nixon, 1961). If this is true, then it makes sense that these students should be the kind who would develop the kind of integration of attitudes, personality characteristics, and overt actions that seems to be identified with Liberalism rather than Attitude Sophistication. Unfortunately for the prospects of further study of this interesting point, the relationship between Liberalism and visiting a psychiatrist is not likely to be the same anywhere that the student-psychiatrist relationship or the context in which it operates is very different from that at Vassar.

The value of the present results lies not in showing that liberalism is different from sophistication of attitudes—this is a commonplace that hardly needs verification—but rather in showing that it is possible to distinguish the two empirically. If the two kinds of attitudes can be measured separately, it should be possible to clear up some of the ambiguities surrounding such matters as the correlates of authoritarianism, changes in attitudes during college, and cultural and group differences in social attitudes.

Several suggestions for developing instruments to distinguish these two attitude factors are afforded by the present results. They indicate that liberalism may be distinguished from sophistication by seeking more overt indices of liberalism to balance against the verbal measures. Although overt behavior is often inaccessible to direct measurement, it would appear that indirect measures, such as self-reports on voting and religious behavior, can be discriminating. Measures of acquiescent response set and of skepticism also show promise of distinguishing the two factors. The relation of Responsibility to the two factors, though weak, came the closest of any to being diametrical. For this reason and because, conceptually, responsibility is so central to the distinction between genuine and pseudo-liberalism, it would appear well worthwhile to try to develop a scale to measure responsibility more purely and as distinct from docile obedience to regulations and expectations.

Summary

From a factor analysis of 17 attitude and personality variables on 249 Vassar College women students, factors identified as Attitude Sophistication and Liberalism emerged. Attitude Sophistication was characterized by expression of liberal attitudes, by rejection of civic responsibility, and by critical, non-acquiescent response set. Liberalism was characterized to a lesser extent by verbal expression of liberal attitudes, more by indications of overt

liberal behavior. It was related to acceptance of civic responsibility and to visiting the college psychiatrist, but was relatively independent of response set. Separation of Attitude Sophistication from Liberalism in future studies of authoritarianism would appear desirable.

E. A Study in the Prediction of Fine Distinctions between Related Scales

Evidence such as that reported in the preceding section is reassuring, but it is open to two objections: (1) If the interpretations of the scales are vague enough almost any results will be confirmatory. (2) Although the results support the interpretations of each separate scale, they do not provide evidence that the scales measure different traits. Some of the sets of adjectives could do about as well for one scale as they do for another.

If two closely related scales such as RS and SI, to take the most extreme example, actually do measure distinguishable traits, then it should be possible to predict ways in which people will differ from one another depending on whether they are relatively higher on RS or on SI. Accordingly, a study was carried out in which three judges thoroughly acquainted with the VAI scales had to make predictions similar in form to the following: "Ss who rank higher on RS than they do on SI will be more likely to be rated as defensive than Ss who rank higher on SI than they do on RS."

The particular ratings to be predicted were 35 adjective check list items[1] filled out by faculty housefellows on the 50 interview subjects used in previous studies. Eight different pairs of closely related scales (see Table 4) were considered, making a total of 280 possible predictions. Judges were not required to commit themselves to a prediction except when they felt some confidence in doing so, however, with the result that they made 122, 176, and 113 predictions respectively.

The overall accuracy of prediction of the three judges (number right divided by number attempted) was .65, .56, and .60. Lest these and the results to be reported later seem too poor, it should be pointed out that the task for the judges was quite different from the usual one where judges are asked, say, to predict differences between high and low scorers on an anxiety scale. In such a case if the scale and the criteria are any good and the judges are on the right track theoretically, they will have an easy job. In this study the task is not to predict differences between opposite poles of a continuum but to predict differences between coordinate poles of two continua that have but a slight angular separation if indeed they have any. Thus any evidence of success above the chance level is highly encouraging. The above overall results depart significantly from chance at the .002, .11, and

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[1] Ambitious, selfish, self-confident, domineering, unresponsive, energetic, defensive, considerate, self-reliant, chronic complainer, reserved, attractive, literal minded, sympathetic, aggressive, respected, friendly, petulant, reliable, ill at ease, sincere, shy, untidy in habits, well-liked, gentle, eager to help, undisciplined, responsive, poor in personal appearance, indifferent to others, disliked, anxious, well-mannered, generous, dependent on others, sense of humor.

Table 4

Agreement Among Judges and Accuracy of Agreed-Upon Predictions

	Scale Comparison	Agreement Among Judges		Accuracy of Predictions Agreed Upon by 2 or 3 Judges[b]			
		C[a]	p	R	W	No Diff.	%R
1	SM vs DS	.39	< .05	10**	0	0	100
2	SM vs IE	.54	< .001	11	6	0	65
3	DS vs IE	.63	< .001	8	7	1	50
4	IE vs DC	.52	< .01	8	4	4	50
5	RS vs SI	.29	< .30	8**	0	0	100
6	DC vs SI	.45	< .02	10*	2	0	83
7	IE vs RS	-.09[c]	> .80	4	4	0	50
8	MF vs DC & DS	-.24	> .30	2	1	0	67

[a] Coefficient of contingency based on classification of items into three categories: 1) all agree or two agree and one blank, 2) disagreement, 3) two or three blanks. Expected frequencies obtained from the full 3^3 contingency matrix.

[b] Consists of items in category 1, preceding footnote.

[c] Negative sign attached to C to indicate departure from expected frequencies in the direction of disagreement.

*P<.05 (two-tailed binomial test based on comparison of R with R + W).

**P<.01 (two-tailed binomial test based on comparison of R with R + W).

.04 levels of confidence.

Table 4 indicates significant though modest agreement among the three judges on five of the eight comparisons. The remainder of the table shows the accuracy of the predictions which were agreed upon by the judges (either all three agreeing or two agreeing and one making no prediction). Of the 90 such predictions, 68 per cent were right, a slight improvement over the accuracy of the most successful single judge. The improvement upon chance, however, is largely accounted for by the predictions pertaining to three comparisons--SM versus DS, RS versus SI, and DC versus SI--where the accuracy is very good indeed. These are the three comparisons on which the judges did best individually as well, although they are not the three on which they showed the closest agreement. What is remarkable is that these three pairs of scales represent the three highest intercorrelations in the VAI battery, and are therefore the ones where the least differences should be expected. It appears that the judges were best at drawing distinctions between the scales that were most closely related !

Examination of the predictions made in these three comparisons throws some light on distinctions between the scales. SM and DS supposedly both measure non-authoritarianism and independence of mind. The judges accurately predicted, however, that Ss ranking higher on SM than on DS would be more often rated as considerate, sympathetic, friendly, reliable, sincere, well-liked, gentle, and eager to help, and that Ss ranking higher on DS than on SM would be more often rated as selfish and undisciplined. It appears that SM measures a more endearing, DS a more obnoxious, kind of independence. This accords well with the observation made in the preceding section that SM is related to halo effects in social scientists' ratings. Apparently other kinds of college faculty members are susceptible to the same effect.

RS and SI, it will be recalled, correlate in the .80s and have many common items dealing with assertions that everything is fine and nothing is wrong. As the judges predicted, however, girls ranking higher on RS than SI were more often rated as domineering, defensive, ill at ease, shy, undisciplined, and anxious and girls higher on SI than RS were more often rated as sincere and well-liked. This seems to be a striking validation of the idea that high scores on RS represent a somewhat defensive or falsified claim to normalcy and well-being whereas high scores on SI represent a more genuine picture of cheerful conformity to the norm. Thus, although the content of RS differs from that of SI in its more insistent denial of anxiety and problems of adjustment, the judges correctly predicted that Ss higher on RS than on SI would in fact show more of these very traits. It appears, then, that ranking higher on RS than on SI is a sign that one protests too much.

In the DC versus SI comparison, the correct and agreed-upon predictions were that Ss higher on DC than SI would be more often rated as ambitious, self-confident, domineering, energetic, aggressive, undisciplined, and anxious, and that Ss higher on SI than DC would be more often rated as friendly, shy, and dependent on others. Judges were incorrect, however, in predicting that DCs would be more often rated self-reliant, SIs more often rated well-liked. This evidence seems to show that Dominance and Confidence is properly named and that this scale, based only on manifest item content, is clearly associated with observable behavior. The scales appear to be alike in measuring optimism and poise, but SI has a component of passivity, DC of ascendance.

Although two judges scored at or below chance level on the IE versus RS reflected comparison, one judge was correct in 15 out of 20 predictions. IE and RS have been previously described as virtual opposites and indeed they have a substantial negative correlation. IE supposedly measures tendencies to express impulses and tendencies toward emotional disturbance; RS supposedly measures tendencies to deny impulses and to be free of overt disturbance. It is not at all clear in what way people high on IE should differ from those low on RS, and the low agreement of the three judges on this point suggests that they may not have been clear themselves. However, one judge correctly predicted that Ss ranking higher on IE than on RS reversed would be more often rated as ambitious, self-confident, domineering, literal minded, sympathetic, aggressive, petulant, reliable, sincere, well-liked, eager to help, responsive, generous, dependent on others, and characterized by sense of humor. He incorrectly predicted that they would be more often rated energetic, self-reliant, attractive, respected, and friendly. The correct predictions point to a more out-going and dominant type of person identified by IE. Evidently these characteristics are not related to either end of the RS continuum.

As for the other comparisons, where the judges fared only at a chance level of accuracy, there is little point in a detailed investigation. Briefly, the results suggest that Ss ranking higher on IE than on DC were rated as more shy and anxious, and that Ss higher on MF than on either DC or DS were characterized by calmness and reserve—a kind of blandness. Nothing intelligible was suggested by the results for the SM versus IE and the DS versus IE contrasts.

It may be asked whether the failure of the judges to predict accurately on some of the comparisons may not have been due to there being no significant differences to predict. Unfortunately this question cannot be answered. The actual differences in ratings between the various comparison groups were of very small magnitude, as was practically assured by the nature of the comparisons. Hence the only evidence of non-randomness in the data comes from the fact that better-than-chance predictions were made. The study seems to have shown that in four difficult and unpromising comparisons valid distinctions between scales could be made.

F. Comparisons of Students in Different Major Fields

Educators are concerned with helping individuals find fields of study that are suitable for them and also with finding people who will benefit the fields of study they enter. Apart from its contributions in the area of ability measurement, psychology has not been of much help in this difficult enterprise. We do have, however, the beginnings of a factual description of the relations between personality characteristics and intellectual activities; some of the basic problems are becoming clearer, and we can see the way that future research might most profitably proceed.

This section attempts a synthesis of the findings to date, with an emphasis on the clarification of issues and the drawing of implications for future research. We first consider the question of what are the personality characteristics that distinguish people in various fields of study. This rather simple question is imbedded in a more basic question: what is it about the various fields that causes them to attract the people they do? We then turn to the problem of how people's intellectual interests develop as a part of their total personality development; and this leads into the issue that we consider to have the broadest implications for higher education, the complex interaction that takes place as people are modified by the fields they enter and in turn modify the fields themselves.

Traits Related to Academic Field of Specialization

College student curricular groups have been found to differ psychologically with respect to three main characteristics: intelligence, liberalism of attitudes, and psychological adjustment.[2] In each instance, the groups seem to be ordered in a systematic way. It is this systematic ordering that lends support to the hope that some basic understandings may come out of research in this area.

Differences in Mental Abilities. The difference between groups of students in various major fields that has been most definitely established is the one that, as it now stands, has the least meaning. Several large-scale studies of the general intelligence of undergraduate students (Wolfle, 1954; Educational Testing Service, 1952; Learned and Wood, 1938) have produced remarkably consistent findings: the average intelligence test scores of major groups regularly fall into an order with the physical sciences, engineering, and mathematics at the top, followed by literature and the social sciences, with the applied fields, agriculture, business, home economics, and education at the bottom. An obvious explanation for this ordering is that it reflects the varying difficulty of the subjects as they are usually taught at the undergraduate level. The order has, in fact, been found to be substantially correlated with the reputations for difficulty which these fields enjoy among undergraduate students (Fosmire, 1956; Fosmire, 1959). It is for this reason that the average scores, though they may be of practical importance, have little theoretical significance. Any department could raise the average score of its students by raising entrance requirements or requiring a stiff course that would eliminate the dullards. It is one thing to keep out the less competent students and another thing to attract those of superior intelligence, however, and it is this issue that seems to have some basic relevance. Do some fields have more intrinsic appeal than others to students of superior intelligence?

To answer this question we must ask, not what proportion of the students in a given field are gifted, but rather what proportion of gifted students go into a particular field. Of the 911 gifted students whom Terman studied, 38 per cent specialized in social sciences, 29 per cent in natural sciences and engineering, and 26 per cent in humanities. There was a marked sex difference, however, with the men mainly choosing majors in one of the science areas and the women choosing social sciences or humanities (Terman and Oden, 1947).

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[2] We leave out a fourth way in which they differ, vocational interests, because it has been impossible to make anything of these differences other than that students are interested in the fields in which they major.

More recent and extensive data from Wolfle (1954) permit us to estimate what proportion of the students within specified intelligence ranges are apportioned to different major fields. In trying to assess the attractiveness of different fields of study it seems best to ignore students of lower intelligence because they must, of necessity, be concentrated in the easier fields. Therefore in examining Wolfle's data we consider only the college graduates who rank in the upper 60 per cent in general intelligence. These are students who would rank in the upper two-thirds of any group of the student body, so that it might be assumed, with a little generosity, that they could do passing work in any undergraduate field. In Figure 1 we compare the top 20 per cent of college graduates with the next 40 per cent, that is, with those ranking in the 41st to 80th percentiles on intelligence. If certain fields do have more attraction for highly intelligent students they should account for a larger portion of the higher group than they do of the lower.

What is most immediately striking in Figure 1 is the evenness of the apportionment of top talent to the various major fields. Fields, such as business and education, which look poor in terms of mean intelligence scores or overall distributions of scores, come in for about the same share of the top students as do the more academic fields.

If, however, we lump engineering with natural science, as is often done, it is evident that this field does attract a large portion of the more intelligent students—over a quarter of them. Moreover, this field is seen to attract a relatively larger portion of the top group than of the lower group, whereas the reverse is true of business and education. Recent data from Thistlethwaite (1959) on 1500 winners and near-winners of National Merit Scholarships generally corroborate these findings, although they reveal sex differences similar to those found earlier by Terman and Oden. After three years in college, 52 per cent of these talented students were in the natural or biological sciences, 18 per cent were in the social sciences, and 20 per cent were in the arts and humanities. Broken down by sex, however, the respective percentages for men were 63 per cent, 16 per cent, and 12 per cent, but for women they were 32 per cent, 22 per cent, and 35 per cent. It therefore appears that any statement about the greater appeal of the natural sciences to students of high intelligence would need to carry the qualification, "for men."

There is, of course, nothing in data of this sort to prove that one field is intrinsically more appealing to the intellectually able than another. Any interpretation of the results shown in Figure 1 must take into account such extrinsic factors as prestige and remunerativeness, as well as the intrinsic factor of difficulty, which is attenuated but not eliminated by our treatment of the data. The possibility of some fields being in a very general way more intellectually challenging than others is one that should not be summarily dismissed without further investigation, however.

The nature of the appeal of natural science will be considered later in a broader context. It may be pointed out here, however, that its appeal to superior intellects need not necessarily be of an exalted kind. It could, indeed, be of a purely negative sort, originating in the fact that natural science is one area in which the precocious youth can be effectively creative before he has acquired any great amount of emotional maturity and wisdom.

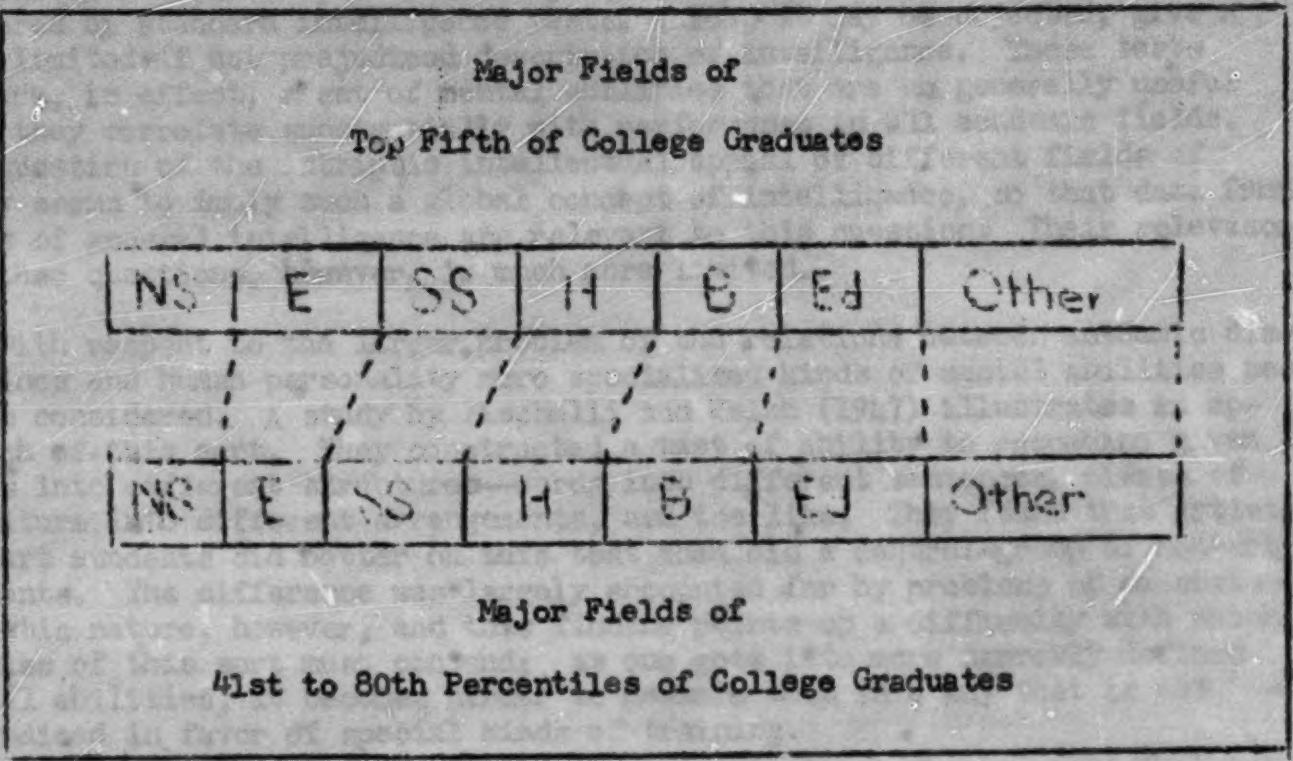

Figure 1. What fields attract the most intelligent students? Segments of the bar graphs indicate what portion of the most intelligent 20% and of the next highest 40% of college graduates majored in each of the following fields:

NS - Natural Science
E - Engineering
SS - Social Science (incl. Psychology)
H - Humanities and Fine Arts
B - Business and Commerce
Ed - Education

(Based on data from Wolfle (1954)).

The data we have been discussing deal only with that ambiguous attribute measured by standard intelligence tests, which, it may be objected, give a very limited if not prejudiced description of intelligence. These tests measure, in effect, a set of mental abilities that are so generally useful that they correlate substantially with performance in all academic fields. The question of the intrinsic intellectual appeal of different fields of study seems to imply such a global concept of intelligence, so that data from tests of general intelligence are relevant to this question. Their relevance to other questions, however, is much more limited.

With respect to the larger problem of the relations between academic disciplines and human personality more specialized kinds of mental abilities need to be considered. A study by Fischelli and Welch (1947) illustrates an approach of this sort. They constructed a test of ability to recombine given ideas into different structures—words into different sentences, pieces of furniture into different arrangements, and the like. They found that artists and art students did better on this test than did a control-group of non-art students. The difference was largely accounted for by problems of an obvious artistic nature, however, and this finding points up a difficulty with which studies of this sort must contend: as one gets into more narrowly defined mental abilities, it becomes harder to measure them in a way that is not prejudiced in favor of special kinds of training.

Two related ways out of this difficulty are available. One is the use of factor-analytic techniques to develop tests of abilities that theoretically are basic to human intellectual organization but which are of a much more specialized type than the complex abilities measured by tests of general intelligence. Some 45 of these abilities are described by Guilford (1956). We may mention a few of these, the names being self-descriptive: Eduction of Perceptual Relations, Symbol Manipulation, Adaptive Flexibility, and Logical Evaluation. Development of tests of this sort often depends on use of the second technique, which, however, can be used without any reference to factor theory. It is the development of mental tests that employ tasks of such an unusual sort that specialized training will not be directly applicable to them. A device originated by John (1957) called the "problem-solving and information apparatus" is a particularly ingenious example of this approach. It is an electronic game requiring the subject to solve deductive logic problems by the use of information he himself asks of the machine. The device furnishes not only measures of the subject's efficiency in performing the tasks, but also measures of the kind of approach he takes. Natural science students were found to differ consistently from non-science students in both respects.

There is every reason to suppose that studies applying tests of these sorts to students in different fields could rapidly get beyond the point of demonstrating the obvious. We should, for instance, be able to find out empirically whether the biological taxonomist has special aptitudes similar to his logical counterpart in the field of linguistics. And there are many comparisons whose outcomes it would be hard to foresee. In what fields do the various memory abilities flourish? Is Adaptive Flexibility more common in some fields than in others? Because, on the psychological end, these ability measures are tied to theories of the structure or functioning of higher mental processes, and because, on the philosophical end, the academic disciplines are tied to theories of logic and cognition, empirical data linking the two should be in little danger of remaining for long in the limbo where so many correlational data stay.

Differences in Attitudes. During the past 30 years the attitudes of college students toward such public issues as war, Communism, labor unions, and religion have frequently been measured. With some consistency, students in certain fields of study have tended toward positions which are popularly regarded as liberal, and students in other fields have tended toward conservative positions (Boldt and Stroud, 1934; Carlson, 1934; Jones, 1938; Fay and Middleton, 1939; Bugelski and Lester, 1940; Newcomb, 1943; Hanchett, 1946; Drucker and Remmers, 1951; Stephenson, 1952; Lipsit, 1953; Noble and Noble, 1954; Pace, 1954; Stephenson, 1955; Lehmann and Ikenberry, 1959). The consistency is far from perfect, and the differences are so small that one investigator, Jacob (1957), was led to the conclusion that no differences exist.[3]

More often than not, however, social-science students come out as the most liberal of the groups in attitude studies. With much greater consistency students in engineering and agriculture appear among the least liberal groups. Literature, arts and natural science groups are usually found between these extremes, with the natural-science groups tending to be less liberal than the others. Students in education are difficult to pin down. Those in secondary education tend to reflect the attitudes of their prospective teaching fields, and those in elementary and physical education tend to be among the most conservative groups.

Small and irregular as these differences may be when compared to differences in intelligence, they are of considerable interest, for there is no obvious selective factor, such as the difficulty of the fields, to account for the differences. Liberalism is usually found to have a positive correlation with intelligence, but the ordering of groups on liberalism is clearly different from the ordering on general intelligence. Engineering is the most extreme case in point, regularly ranking among the first in intelligence and the last in liberalism.

The most conservative groups are all in applied rather than academic fields. One factor that may help to account for this conservatism is that these fields tend to draw students from lower social-class levels than do the academic fields (Wolfle, 1954). Looked at in another way, the attitudes of students in the applied fields differ from those of students in the academic majors in the same direction that the attitudes of the public as awhole differ from those of college students. It seems quite reasonable to suppose that students who seek higher education mainly for some special vocational preparation should tend to resemble people in the work-a-day world more than do academicians.

The differences among students in the liberal arts can similarly be given a common-sense explanation. Even if teachers in all liberal arts departments were equally liberal (studies show that they are not, but that they are, at any rate, usually more liberal than their students) the amount of liberal teaching to which a student would be exposed could be expected to vary with the subject. A student entering a social science could expect a fairly strong dose of liberal teaching, one entering a literary field could expect somewhat less, and a student entering a natural science might expect the liberalism of his professors to show itself hardly at all. Thus it seems reasonable to suppose that the same kind of self-selection processes that are shown by McConnell and Heist (1962) to result in attitude differences among students who choose different colleges may also operate intra-murally to discourage conservative-minded students from entering fields where their beliefs will be directly challenged.

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[3] Jacob's point appears to be that no differences exist to the extent of one group being for something which another is against. However, when all groups are against Communism, it is still possible for one group to be more strongly against it than another. Even Jacob's report on the Cornell data (Golden, Rosenberg, Williams, and Suchman, 1960) shows the social-science students usually differing from the others in the liberal direction.

Whatever the reason, it does appear that some fields are relatively more attractive than others to liberal-minded people and some more attractive to conservative-minded people. If social attitudes exist in a vacuum, then these differences have little importance. But if social attitudes are but one manifestation of the way people view the world, if, as the authors of The Authoritarian Personality (Adorno, Frenkel-Brunswik, Levinson, and Sanford, 1950) assert, these attitudes provide an indication of how the individual's whole personality is shaped, then we have here an essential item of information in describing any field of study.

It happens that most attitude scales lend themselves to interpretation in terms of liberalism versus conservatism; but this is not the only dimension along which attitudes may differ, and it may not be the most meaningful one for studying college students. It tends to lump together those students who are serious liberals with those who have merely taken on the liberal coloring of the college community, and those who have strong conservative convictions with those who simply have no opinions on major issues and make conventional, childish responses to attitude items. We could therefore hypothesize a dimension which separates people with internalized social attitudes from those whose attitudes are largely external trappings, and which cuts vertically across the liberalism-conservatism axis.

Something like this may be accomplished by the Traditional Scale of Prince's Differential Values Inventory (Prince, 1957). This scale balances items upholding the values of hard work, individualism, strict morality, and deferred gratification against items favoring conformity to the peer group, enjoyment of life, sociability, and moral relativism. We would suggest that these items give a fair representation of the attitudes associated with Riesman's inner-directed and other-directed character types. In a study at Michigan State University by Lehmann and Ikenberry (1959) this scale was found to be uncorrelated with a measure of liberalism.

If our interpretation of the scales is correct, there seems to be a four-way split of major groups in attitudes, of the kind shown in Figure 2. In one corner are liberal, other-directed students, represented in the Michigan State study by those in communication arts; in another corner are liberal, inner-directed students, represented by those in the sciences and arts; then there are conservative, inner-directed students comprising those in the applied sciences; and finally, the conservative, other-directed students, represented by education students and, to a lesser extent, by those in business and public service.

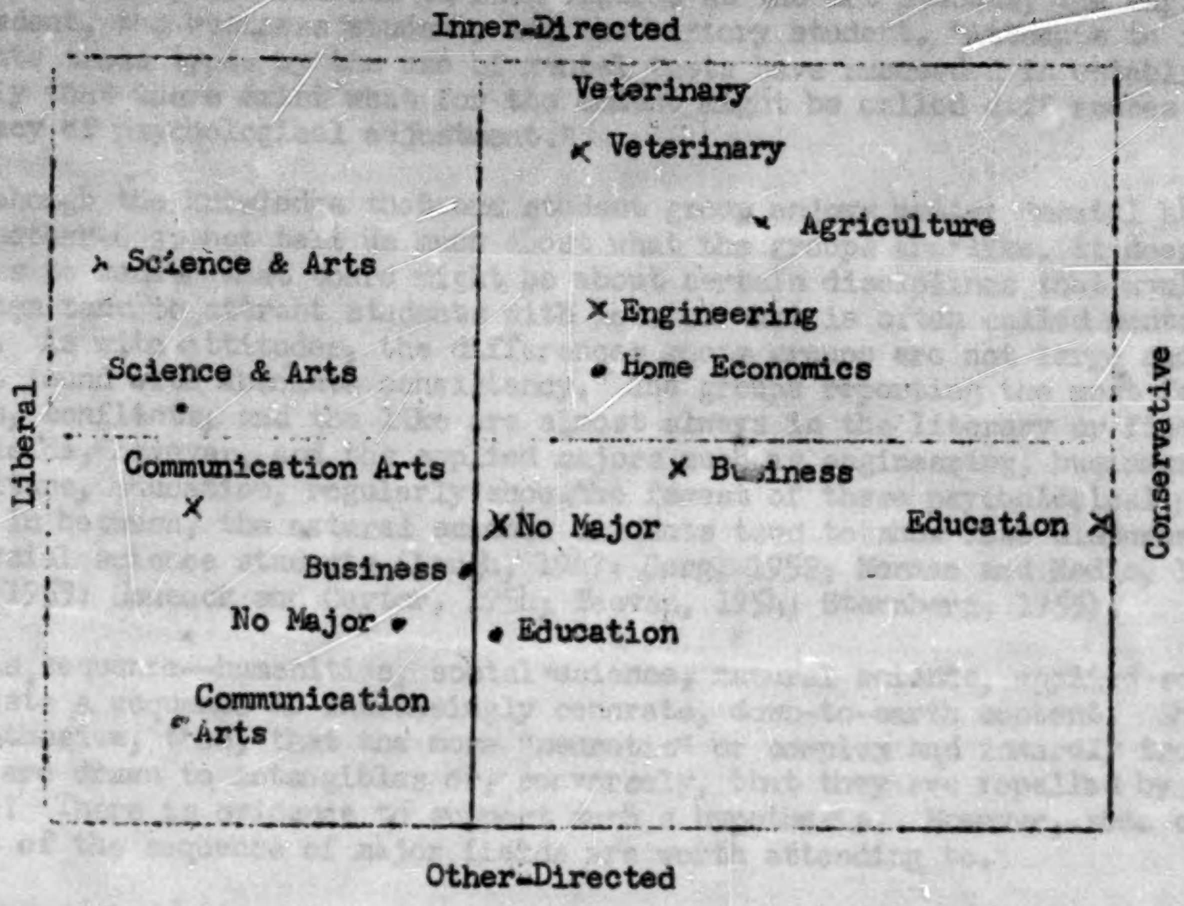

Figure 2. Location of Michigan State University curricular groups on two attitude dimensions (based on freshman test data from Lehmann and Ikenberry (1959)). Crosses represent male students, dots represent female students. Liberalism is measured by the Inventory of Beliefs, Inner- vs. Other-Directedness by the Traditional scale of the Differential Values Inventory. The two axes represent mean scores for all freshmen (N = 2746). Distances from the two axes are in standardized units.

Differences in Personality Traits. Familiar academic stereotypes assign quite different personalities to such figures as the art student, the engineering student, the business student, and the history student. Attempts to investigate these types by the use of mental tests have succeeded in establishing only that there exist what for the moment might be called differences in "adequacy of psychological adjustment."

Although the knowledge that one student group enjoys better "mental health" than another does not tell us much about what the groups are like, it does cause us to wonder what there might be about certain disciplines that would make them tend to attract students with less of what is often called mental health. As with attitudes, the differences among groups are not large and are not found with absolute consistency. The groups reporting the most fears, worries, conflicts, and the like are almost always in the literary or fine arts fields, however, and the applied majors such as engineering, business, agriculture, education, regularly show the fewest of these psychological problems. In between, the natural science students tend to show less disturbance than social science students (Lough, 1947; Borg, 1952; Norman and Redlo, 1952; Clark, 1953; Hancock and Carter, 1954; Teevan, 1954; Sternberg, 1955).

This sequence—humanities, social science, natural science, applied science —suggests a sequence of increasingly concrete, down-to-earth content. Shall we hypothesize, then, that the more "neurotic" or complex and inwardly troubled people are drawn to intangibles or, conversely, that they are repelled by the mundane? There is evidence to support such a hypothesis. However, some other aspects of the sequence of major fields are worth attending to.

To a great many people, we suspect, the sequence would appear to run from the odd and effeminate on one end to the normal and acceptably masculine on the other. The man who elects to specialize in the arts or a social science thus runs counter to social expectations that may in some cases be fairly strong. By a not unreasonable generalization we can suppose that the men in the fields will represent a more deviant, non-conforming, and therefore, by definition, abnormal group. But in our study of the women at Vassar College, where the norm is quite the opposite, the humanities being the overwhelming choice and natural science majors being few, the order of the groups on tests of psychological adjustment is the same as that given above; and the differences are statistically significant.

To take another line of reasoning, it makes sense that a psychologically disturbed person should give some weight, in any major decisions he makes, to alternatives which promise some relief from his disturbance. It has been found, for instance, that students who elect abnormal psychology courses tend to be more abnormal than those who elect other kinds of psychology courses (Wise, 1959). Fields that are concerned with human beings and their more human problems are certainly more directly relevant to an individual's own psychological problems. But this could well be a source of further disturbance rather than alleviation. It might make more "sense" for the neurotic person to seek refuge from his problems in a field where they would not be brought to his attention so often. We need not delve here into the psychological dynamics which might lead to one or the other course of action, except to note one point which bears directly on the data.

The evidence on psychological adjustment of college students is based largely on scores on the Minnesota Multiphasic Personality Inventory (MMPI) and a few other tests of the questionnaire type. Although these tests may have some power to unearth fairly deeply hidden disturbances, there is no denying that among reasonably normal subjects, like most students, those who are conscious of their difficulties will get worse scores than those who repress them. The small differences in scores between major groups could, therefore, reflect differences in degree of consciousness of disturbance rather than differences in amount of disturbance itself. If so, it would make sense that those people whose adjustment depends more on repression of symptoms should tend toward impersonal fields where their repressions are in less danger of being shaken.

In order for knowledge about people's pathologies to be relevant to what is known about their fields of study, we need to know the nature of their pathologies. The value of such information may be illustrated by comparing two Vassar College students who were interviewed by the staff of the Mellon Foundation.[4] Both students showed relatively severe personality disturbances and both of them were majoring in drama with the intention of becoming college drama or English teachers, yet the relations between their personality disturbances and their choice of field of study were radically different.

Miss Elizabeth Carter was a truly outstanding writer—of plays, poetry, novels, and short stories. In the eyes of many faculty members she was the best writer to appear in the student body at Vassar College in a good many years. But Miss Carter was also quite an unstable personality, subject to periods of depression, apathy, and social withdrawal. In these periods her literary productivity suffered badly.

As one might anticipate, Miss Carter was fully open to and appreciative of human feeling and thought of all kinds—in her own writing and in the works of others. The product of a broken home, the daughter of a father who had little to do with his wife and daughter except to indulge his sadism and make life difficult for them, she was keenly aware of life's tragedies and the complexities of human relationships. All in all it appeared that her writing was a kind of prop upon which her stability rested. Although interested in literary and dramatic criticism, teaching, and other aspects of the life of a college faculty member in the fields of drama and English, it is clear that her own creative writings were the focus of Miss Carter's activities as a student and her plans for her future teaching endeavors.

Miss Beatrice Riley, on the other hand, possessed little creativity. She wrote only when required to in her courses and confined her dramatic activities to rather technical backstage enterprises. Mostly she liked to read and discuss plays and literature. In her evaluation and criticism of artistic work she tended to follow certain rather definite "party lines."

Miss Riley's chief academic interests in many ways were more in social relations than in the content of her studies. She was a member of a rather small group of students who held themselves aloof from and rather looked down upon the remainder of the student body. As a member of this group of students who were confidantes of some members of the literature and arts faculty Miss Riley was privy to much of the gossip and talk that passed among the faculty. She knew the latest fads in literary criticism, was aware of what to like and dislike. In short Miss Riley was already rather an apprentice teacher.

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[4] For purposes of regard for the privacy and anonymity of our subjects, their names and characteristics which would divulge their personal identities have been altered.

Miss Riley came from a home in which there was much strife between the parents, although they had not separated. Her relationship with her father was poor. It appeared that he had little use for women, at least for women who were so bold as to be interested in college and even post-graduate education. Her relationship with her mother contained some elements of essential warmth, but Miss Riley really could not respect her submissive mother who had but a high school education and who had almost no intellectual or esthetic interests.

Miss Riley seemed to be using various faculty members to establish more satisfactory relationships with adults than had characterized her experiences in her own family. Women faculty members became figures whom she could admire and provided models of behavior for her to emulate, unlike the situation with her mother. And male faculty who liked her were in a sense fathers who could appreciate and value intellectual activity in a woman. These substitute parental relationships and the identity of apprentice and future college teacher were the plaster that held Miss Riley together. Her years in high school and her freshman and sophomore years of college as well had been ones of great strain and turmoil; but once Miss Riley had become a member of what was for her a most congenial community and when she discovered a suitable role, that of student and teacher of literature, almost miraculously a great sense of order and stability was restored to her life.

Whether Miss Riley or Miss Carter will make the better English teacher appears to be an unanswerable question. The differences between them are so extreme as to defy such a simple evaluation. In terms of mastery of subject matter, Miss Riley will probably appear sounder. Her need to fit securely into the role of English teacher will surely impel her to use her quite adequate intellectual resources in meeting all the scholarly requirements of that role. Miss Carter's scholarship, on the other hand, is more likely to be spotty, governed more by her highly individualized tastes than by traditional requirements. But where Miss Carter will bring deep emotional sensitivity to her functions as scholar, critic, and teacher, Miss Riley will bring only the language of feeling. Miss Carter may be a stimulating and at times brilliant teacher, but in periods of depression and inner turmoil her teaching may also be aimless and indifferent. Miss Riley's teaching, on the other hand, should be well-organized, thorough, consistently up to standard, and only the latter-day Miss Carters in her classes may feel that anything is missing.

If one may generalize by casting these women into types, it is clear that the Miss Carters and the Miss Rileys will tend to generate disciplines which, though they share the title English literature, are actually quite different and perhaps not even very compatible. A study of the personalities of people in a field like English that could distinguish not only degrees of psychological disturbance but also kinds of disturbance would be able to show whether such types do exist and would make it possible to examine how these types function and interact within the field.

Unfortunately the measuring instruments that have been used in past studies do not appear to be adequate for this purpose. Although the MMPI has scales for nine different kinds of pathological tendencies, the obtained results have not provided distinctions such as those made here between Miss Carter and Miss Riley. Groups of students that are high on one scale tend to be high on all of them. An exception is the Masculinity-Femininity scale, essentially an interest test, which typically assigns high femininity scores to students in literature and the arts. The only other distinction which may have some validity is a tendency for students in psychology and sociology in the reported studies to have relatively high scores on the Psychopathic Deviate scale, a scale which is taken to measure hostility, rebellious attitudes toward authority, and disregard for convention.

The attitude and personality studies cited have compared groups on one measure at a time, leaving to speculation the relation of one difference to another. There is enough correlation among attitude and personality measures, however, that worthwhile inferences may often be drawn by studying several measures and their interrelationships at the same time. A study of this kind carried out by the Mellon Foundation (Bereiter and Freedman, 1960) yielded results that suggest new bases for describing the differences among curricular groups.

In the Vassar study, the student groups in the various major fields were found to differ significantly on all seven of the Vassar Attitude-Inventory scales. It had previously been found that most of the variation among individuals on these scales could be accounted for by three composite measures, but it was discovered upon further analysis that the curriculum groups differed significantly on only two of these composites. It was therefore possible, by algebraic transformation of the scores, to isolate two factors that accounted for almost all the group differences and a third factor on which the groups were virtually indistinguishable.

The locations of various curricular groups with respect to the first two factors are shown in Figure 3. The vertical axis represents a factor which we have identified as unconventionality. This is a factor which cuts across the distinction between attitudes and personality traits, for it involves not only unconventional (liberal) attitudes but also unconventionality in the conduct and style of one's life. Although there are discrepancies that may be attributed to the special characteristics of particular departments at Vassar, the tendency is clearly for students in literary fields to score higher on this factor than students in natural science and applied fields. The scores are consistent with prevalent Vassar stereotypes which describe the high-scoring groups as more "off-beat" and "intellectual," the low-scoring groups as more conventional and conformist.

The horizontal axis represents a factor which we have identified as social confidence. On this factor the overall distinction is between social science groups, which tend toward the confident end of the scale and the natural science and literary fields, which tend toward the less confident end. Again with reference to local stereotypes, the factor appears to distinguish groups reputed to be sociable and out-going with groups that have the reputation of being more "bookish" and socially withdrawn.

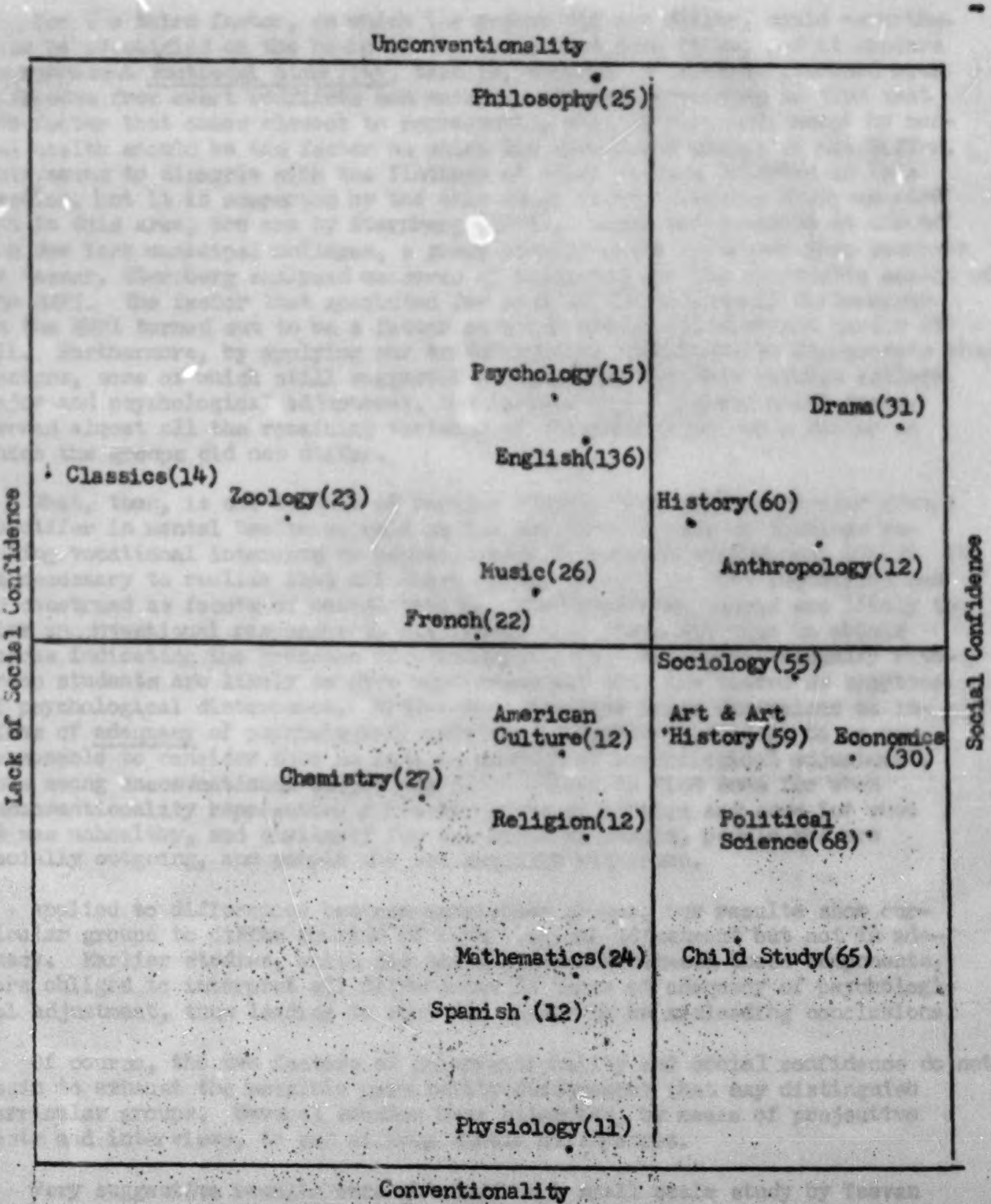

Figure 3. Location of Vassar College major groups on two attitude-personality dimensions. Based on freshman scores of classes of 1957, 1958, and 1959. Numbers in parentheses indicate number in each group (total N = 739). The two axes represent grand means. Distances from the axes are in standardized units. A third dimension, called emotional stability, on which the groups did not differ, is perpendicular to the two axes shown.

Now the third factor, on which the groups did not differ, could nevertheless be identified on the basis of the tests that made it up, and it appears to represent emotional stability, that is, control of impulses combined with a freedom from overt conflicts and worries. It was surprising to find that the factor that comes closest to representing what is popularly meant by mental health should be the factor on which the curricular groups do not differ. This seems to disagree with the findings of other studies reported in this section, but it is supported by the only other factor analytic study carried out in this area, the one by Sternberg (1955). Using men students at one of the New York municipal colleges, a group clearly quite different from students at Vassar, Sternberg analyzed measures of interests and the diagnostic scales of the MMPI. The factor that accounted for most of the individual differences on the MMPI turned out to be a factor on which the groups differed hardly at all. Furthermore, by applying our transformation techniques to Sternberg's other factors, some of which still suggested asubstantial relation between college major and psychological adjustment, new factors were obtained which transferred almost all the remaining variance of the MMPI scales to a factor on which the groups did not differ.

What, then, is one to make of earlier studies that show curricular groups to differ in mental health as well as the substantial body of findings relating vocational interests to psychological adjustment (Patterson, 1957)? It is necessary to realize that all three of the factors we have identified can be construed as facets of mental health. Unconventional people are likely to give unconventional responses to diagnostic test items and thus to obtain scores indicating the presence of psychopathology. Similarly, socially withdrawn students are likely to give test responses that are scored as symptoms of psychological disturbance. Rather than consider these dimensions as indices of adequacy of psychological adjustment, however, it seems to us more reasonable to consider them as indices of kind of psychological adjustment. Thus among unconventional people one could expect to find some for whom unconventionality represented a healthy state of affairs and some for whom it was unhealthy, and similarly for conventional people, people who are socially outgoing, and people who are socially withdrawn.

Applied to differences between curricular groups, our results show curricular groups to differ in kind of psychological adjustment but not in adequacy. Earlier studies, which did not distinguish between these components, were obliged to interpret all differences in terms of adequacy of psychological adjustment, thus leading to what now appear to be misleading conclusions.

Of course, the two factors of unconventionality and social confidence do not begin to exhaust the possible personality differences that may distinguish curricular groups. Several studies have attempted, by means of projective tests and interviews, to get at more subtle differences.

Very suggestive results were obtained in a small scale study by Teevan (1954) using the Blacky Pictures.[5] To discuss the findings in detail would require a prohibitively long digression into psychoanalytic theory. Briefly, the study agreed with others in finding less evidence of psychological disturbance among students in the natural sciences than among those in social science and the humanities, but the latter groups showed different kinds of disturbances. The humanities majors showed a kind of disturbance that was called oral-erotic, a tendency to seek sensual gratification in oral, including verbal, activities. The social science groups showed a constellation of aggressive and sadistic tendencies that, according to psychoanalytic theory, derive from disturbed relations with the mother. The finding about the humanities fits in with much psychoanalytic thinking about the nature of literary and artistic activity such as, for instance, the theory of Bergler (1954). Corroboration of the finding about the social sciences has been afforded in studies by Roe (1953) and Nachmann (1958), in which social scientists reported more intense and disturbing childhood relations with their mothers than were reported by other scientists.

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[5] In the Blacky Test subjects are asked to tell stories based on pictures of dogs in various situations, the rationale for the test being that people will be less guarded and thus more revealing in their imaginative productions concerning infra-human creatures than they would be if people were involved.

Roe's intensive studies of scientists revealed other personality differences that may be sensibly related to people's fields of specialization. In responding to projective test stimuli, social scientists were more productive and showed less intellectual restraint than did natural scientists. Segal (1953) noted a similar difference between students of creative writing and accounting students. Interesting differences were also found between subclassifications of the sciences. We cannot attempt to mention all of them, many of which invite speculation as to how they might be connected with differences between scientific disciplines. By way of illustration, however, we quote Roe's summary of the differences between different faculties in the biological sciences:

"All biologists are more like other biologists than they are like physicists or social scientists. The anatomists are generally the least intellectually controlled; the physiologists seem to show more free anxiety and more concern with immediate personal problems than do the others. The botanists appear to be a generally rather well-adjusted group, and rather placid, with no particular deviant tendencies. The geneticists are a more colorful group than the others, with somewhat more emotional dominance, but this is of a sort different from that shown by the anatomists (Roe, 1956).

What is most impressive in Roe's findings, however, is the ubiquitousness of the contrast between a concern with people and a concern with impersonal things. It appears in the scientists' recollections of childhood and adolescence and in their mature social lives. It also appeared in their Rorschack test responses. The social scientists reported many more human figures than the natural scientists, who on the other hand reported more abstract patterns. Evidence of a lack of close interpersonal relationships in the lives of natural scientists was also given in a projective test study by Clifford (1958); and evidence for the lesser sociability in childhood of natural scientists is provided in Terman's longitudinal data (Terman, 1954). There seems to be here a very clear-cut example of a difference in choice of fields of study reflecting a more basic and pervasive difference in way of life.

Personality measurement at the present time is at a stage of development where it is considerably easier to develop reliable measuring devices than it is to find out what they measure. As a result we have been able to speak confidently about the existence of personality differences between curricular groups but have had to remain vague about the nature of these differences.

The personality differences that have been noted in this chapter can all be grouped into two categories, which is not to say that there really are only two differences, but only that there is insufficient basis for further subdivision of categories. On the one hand are the differences related to signs of psychological disturbance, unconventionality, and awareness of psychological problems. These characteristics, which are hard to tell apart, all seem to have to do with the person's inner life—with his thoughts, emotions, and impulses and how he deals with them. The fact that choice of field of study is related to individual differences in this area thus indicates what we would of course suppose, that a person's intellectual pursuits are integrated in some way with other aspects of his inner life.

The other category of relevant individual differences includes such things as differences in sociability, confidence in social situations, and interest in people. It clearly centers around the person's social life. Since choice of field of study is also related to individual differences in this area, we have a basis for supposing that the sort of intellectual activities a person pursues implies something about how he relates to other people, or vice-versa. The connection may be a very superficial one: some pursuits involve more contact with people than others, so that a person's choice of field may be influenced by how much he wants or doesn't want contact with other people. Or the connection may be more profound. It may be that there are basic ways of relating to things outside oneself that apply to one's relations to people as well as to impersonal objects and abstractions.

Choice of Major Field in the Context of Human Development. The research we have been discussing is based on an essentially static view of human affairs. It is concerned with the way things are at a particular point in time. Carried to completion, this kind of research would provide us with detailed descriptions of various groups of people as they were at certain times and of the fields of study with which they were associated and, hopefully, one would be able to educe certain relationships between the two kinds of descriptions.

This static approach has a very desirable simplicity of conceptualization and technique, but, of course, it fails to contend with the state of flux which we know to characterize real situations. In order really to understand observed relationships we shall probably have to consider people and fields of study as they develop over time.

Theorists concerned with vocations have found it useful to regard vocational choice as a process extending over a number of years rather than as a single act (Ginzberg, Ginsburg, Axelrad, and Herma, 1951; Super, 1953), and this approach is clearly applicable to choice of academic field of study. Two possibilities are suggested by this approach. One is that certain intellectual interests and the personality traits that are correlated with them can be traced to common sources. The other is that people who enter certain fields may not only have distinctive characteristics but also may have arrived at their choice of field by distinctive routes.

The studies of Anne Roe have gone farthest in examining these possibilities.

We alluded earlier to Roe's finding that social scientists, in contrast to natural scientists, reported intense and disturbing family relationships in childhood. This finding has led Roe to hypothesize that the same parent-child relationships that were the source of later personality disturbances were the source of a concern with human relations that led the individuals into careers in the social sciences (Roe, 1953). For the natural scientists early family life seems to have been characterized by detached, unemotional, and vague relationships, so that Roe was led to hypothesize that the future natural scientists were led on the one hand to abandon efforts at intimate human involvement and on the other hand to turn their attention to the more approachable and comprehensible world of impersonal things.

Roe's natural and social scientists also had rather different educational histories. The natural scientists developed early interests in their fields and seem to have followed fairly straight courses toward their ultimate positions; whereas the social scientists seem to have been lacking in any particular early commitment, to have gone off in various directions in college, often pursuing literary studies, finally coming to the social sciences as graduate students having become disenchanted in some way or other with the fields in which they had previously been studying.

One cannot make too much out of this one finding, for there are many incidental factors, such as the stricter academic requirements for graduate study in natural science and the relative newness of the social sciences, that might account for it. But it does suggest an interesting way of elaborating studies of the differences between students in different curricula. As was true for Miss Carter and Miss Riley whom we discussed earlier, among the students majoring in a field like English we might be able to sort out groups who consciously viewed the business of majoring in English in different ways. For some (for many girls, we suspect) it might be viewed as a temporal activity, something they do while they're in college. They stay in a certain dormitory, join certain clubs, and major in a certain subject—all of these chosen, perhaps, with some seriousness and with some eye to future benefits, but nevertheless affairs of the moment. For others it might be a clear and orderly step in the direction of some future goal, even if the goal itself is something ambiguous like "being a good wife." In the case of Miss Riley the goal was quite clear, that of a teacher of English in college. For others, like the social scientists Roe studied, it might be a kind of tree they sit in while they are looking around trying to get their bearings. And for some it reflects a deep involvement with literature and the content of the field. This was the situation with Miss Carter.

The differences here are more than just differences in attitude toward English as a field of study. They are differences in the role that studying English plays in the course of development of different individuals. We might reasonably expect that these subdivisions of English students would differ from each other psychologically, just as in the aggregate English students differ from students in other fields. Moreover, we might expect that goal-directed students in English would be something like goal-directed students in other fields, and that these similarities might sometimes cancel out the differences related to difference in field of specialization. The analysis of differences would therefore become a good deal more complex, but it might yield more valuable information.

A more objective facet of the developmental problem we are considering is whether the individual continues in the major field he first selects or whether he changes to another field. Only the crudest sort of comparisons of changers and non-changers have been made, showing that changers do about as well academically as non-changers (Fullmer, 1956) and that students change mainly because of poor performance or loss of interest in the original field (Brass, 1956). Much more could be done in this area, if account were taken of what fields students changed from and what fields they changed to.

Changes in personality may well produce changes in interests, but it is not to be expected that personality changes, even very pronounced ones, will necessarily lead to changes in field of study. People's paths through life are often not that reversible. One of the most striking instances of personality change observed by the Mellon Foundation staff illustrates this point clearly.

Miss Catherine Cranston entered college with the aim of majoring in chemistry and becoming a research worker in the field. She had been an outstanding student in high school, particularly in the physical sciences. The impression she made upon the research staff during her freshman and sophomore years was that of an extremely isolated person. An only child whose father had died early in her life she had been raised by her mother. Since her mother had had to work, Miss Cranston had from early childhood on been cared for by a series of housekeepers, baby-sitters, and the like. Although her relationship with her mother was free of overt strain or discord, no real intimacy between them seemed ever to have existed. Nor had Miss Cranston ever had any close friends. It is easy to see Miss Cranston as fitting Roe's picture of the natural scientist—someone whose interest in impersonal things was fostered by the lack of satisfying human relationships.

Miss Cranston seemed to fit very well the classic picture of the schizoid personality, those people who glide through life without establishing any real emotional ties with other people but who do not manifest any noteworthy overt personality difficulty. It seemed to the research staff that her future was easy to predict. Miss Cranston would do well in her studies both undergraduate and graduate and would then go on to a research job in a laboratory. At no time, as a student or later, was she likely to establish a close relationship with anyone. The images came readily: a lonely figure working quietly and efficiently in a laboratory all day, then returning to her apartment for a cheerless dinner and a lonely evening—this going on uninterruptedly for some 40 years.

But things did not develop at all this way. Miss Cranston was assigned as a freshman to a roommate situation involving two other students. These two girls, being intelligent, sensitive, and warm-hearted, pretty much took it upon themselves to draw Miss Cranston "out of her shell"; and although it took some doing, they were very successful. By the end of her junior year, Miss Cranston was truly a changed person. There was a vicacity in her demeanor that had been almost totally absent in her freshman year, and socially she displayed an ease and poise that several years earlier one would never have expected she could possess. Both from her appearance and her interview reports it was obvious that Miss Cranston's relationships with other girls had undergone profound changes in her college years. By graduation she was able to place a trust in other girls and in relationships with them in a way that had not been possible to her earlier. It is interesting to note, however, that as of the time of graduation Miss Cranston's social isolation from men had not been altered. She had not had any dates during her college years.

Until her senior year Miss Cranston had stood rather firmly by her original vocational goal of research activities in a laboratory. In her senior year, however, she began to wonder whether she might not be happier and more productive if she went into teaching at the high school level. Her reasons for this change were expressed as follows. "Perhaps I'd like it better if I were working more with people than I would be in a research lab." At the time of graduation Miss Cranston had not decided between these alternate plans.

Even if Miss Cranston's original interest in physical science grew out of a lack of close interpersonal relationships, her later social development did not lead her away from physical science but only led her toward a different role within the field. Much of the variety that one finds among the people within any field may well be due to this somewhat bewildering but highly encouraging fact that people go on developing after the die has seemingly been cast.

If people change in spite of their choice of field of study, they should also change because of it. That, after all, is what we expect of education. If intellectual disciplines have any of the potency they are supposed to have, we should expect them to influence how people develop. The individual who enters a field ought to change in some predictable direction—perhaps becoming more like the other people in the field, or perhaps, as may have been the case with Miss Cranston, undergoing some more complex counter-change, as he reacts to the content of the field and to the other people in it.

Data on college students, among whom this sort of change ought to be most apparent, do not give a clear picture at all. This may in part reflect the technical difficulties in comparing changes in test scores (Stewart, 1962). Jacob (1957) has summarized the research on attitude change, finding generally no evidence of differences in change between curricular groups. A few studies have shown a tendency for social science students to show greater gains in liberalism than other students (Boldt and Stroud, 1934; Bugelski and Lester, 1940; but compare Jones, 1938); however, this may indicate only a greater original disposition to accept liberal teachings, as we have suggested earlier.

Where mental abilities are concerned, the data are few but are a little clearer. Students who study mathematics seem to improve more than other students on measures of quantitative intelligence, and literature students improve more on verbal measures. There is evidence that social science students, on the whole, do not gain as much as students in the arts and natural sciences (Shuey, 1948; Rogers, 1930; Louise, 1947; Learned and Wood, 1938). Students generally improve in verbal abilities regardless of what they study, but those who do not study mathematics in college sometimes decline in quantitative abilities (Rogers, 1930; Learned and Wood, 1938; Louise, 1947). Undoubtedly these findings reflect in part differences in training in specific skills, but they should not be brushed off as indicating no more than that. Quantitative intelligence scales are not mere measures of technical skills, any more than verbal comprehension tests are. To a large extent they measure ability to reason abstractly, so that the fact that large groups of students come out of college less capable in this respect than when they went in tells us something of psychological importance as well as giving us grounds for questioning the ideas of some people about what constitutes a liberal education.

Vassar College curricular groups, as we reported in the preceding section, differed significantly on all seven of the Vassar Attitude-Inventory scales. When changes from freshman to senior year were compared, however, the groups differed significantly in change on only one scale, the Repression and Suppression scale (Stewart, 1962). Scores for students as a whole show a tendency to increase a small amount on this scale over the four years, indicating evidently a slight tendency to be more guarded and evasive in answering test questions. History, English and drama students have comparatively low freshman scores on the scale, but as seniors history students increase. English students remain about the same, and drama students tend to diminish in evasiveness. Students in child study and in art and art history have comparatively high freshman scores, but the child study students score still higher as seniors, while the art and art history students show little change.

These differences can be interpreted in the light of the content of the fields, though such interpretations must be very tenuous without clearer evidence. It would appear that the study of English and drama tends to keep personal emotional problems in the foreground, whereas the study of history or art and art history tends to deflect attention to more impersonal matters. Child study, perhaps, furnishes already rather repressed students with more accurate cues as to what good "adjustment" should look like. It may well be, however, that child study and the other fields in which Repression and Suppression scores increase do help the students who pursue them to resolve some of the problems they brought to college with them.

Considering the amount of change which the Attitude Inventory scales do reveal in Vassar students as a whole, as reported by Stewart (1962) the present findings can only be taken to show precious little effect from major field of study. In contrast, the differences in change reported by Stewart (1962) among National Merit Scholars in different fields indicate a substantial effect. One explanation for the discrepancy may be that in a relatively small, tightly-knit college like Vassar the effect of the total college experience greatly outweighs the influence of particular subjects or departments; whereas in larger institutions, where there may be considerable social and even geographical distance between departments, the school has less overall influence and the effect of particular departments and student sub-cultures is greater.

In considering individual development as it relates to fields of study we tend for the sake of simplicity to regard the fields themselves as "givens," as fixed entities to which the individual adapts. Actually fields develop too; and in many fields the rate of development is not slow compared to the rate of development of individuals, so that we have a problem there also, when an individual tries to adjust to a field that is not the same by the time he has finished adjusting. More to the point, however, is the fact that an individual does not adjust to a field per se but to the field as he perceives it and most likely only to selected portions of that. "Adjustment," in fact, is not a very good term in this context. The person who sets out to become a bricklayer may indeed have to adjust to the clearly defined role of the bricklayer, but the student who sets out to study Spanish literature or the scientist who tries to carve out a career for himself in the study of public opinion has much greater freedom. Within certain fairly wide limits he can define the field and the role he is to take in it to suit himself.

This point is obvious enough when we talk about individuals, but when we talk about groups of people, it is difficult to formulate the idea in a way that is not hopelessly confused. The terms "constraint" and "variety," which Riesman applied to a number of aspects of education (Riesman, 1956), can be used with a slightly different meaning to simplify our formulation here. Forces which tend to keep a field the way it is or to keep it developing in the way it is going, even at an accelerating rate, we may call constraining forces. Forces which tend to alter the nature or direction of development of a field we may call forces of variety.

The tendency of fields to attract people similar to those already in them will ordinarily be a constraining force, although in a changing society it may be a force for change. For instance, in a rapidly changing field like psychology it might be argued that the tendency of the field to go on attracting the same kinds of people produces novelty as much as it impedes change. Each new generation of "anachronistic" psychologists encounter a new discipline with which to be out of step, and their inclinations are as likely to lead them to form new movements as they are to lead them to sustain older ones. Thus in the twenties the student who still saw psychology as a cultural science could resist the mechanistic tendencies of behaviorism by aligning himself with the newer gestalt school rather than by reverting to Jamesian speculation; and the young psychologist of today who is still a pre-World War II experimentalist at heart and who has no taste for mathematical models may take up the study of teaching machines instead of sticking to his memory drums. Variety also arises from the tendency of fields to attract different kinds of people for different reasons and also from the fact that people often change in different ways in response to the same general situations. Opposed to these forces is a constraining force that is probably much stronger in some fields than in others, the tendency of a field to mould people into a likeness, to fit people out with a standard set of attitudes and styles of behavior.

Just as the selective and formative power that a field has over individuals is a major constraining force, so may we expect the powers of selection and redefinition that individuals have over the content of a field of study to be a major source of variety. Taking these factors into account, it ought to be possible to examine a field and arrive at some realistic estimate of its potentialities for change as against the likelihood that it will go on as it is. We should need to know what kinds of people it attracts as students and professionals and what sorts of changes it produces in them. We should want to know how susceptible its content is to redefinition, how resistant it is to the efforts of individuals to reformulate it in their private ways.

In the end this kind of information ought to have great value for people who have the wisdom to use it properly. One of the marks of professionalism is a concern over the future of one's field. Wisely exercised, this concern will lead to some stability and linearity of progress but also to variety and changes of direction, so that the future will not be merely an extrapolation from the past.

The relative weight given to these two objectives will, of course, vary from field to field and from time to time, but it appears to us that at the present time the forces for constraint are stronger than they ought to be in most fields. There is a clamor in most fields for greater selectivity in admitting students as well as staff. This emphasis is likely to result in making less room for the person who is deviant either in personal characteristics or in educational background.

An interesting example of the conflict that may exist between constraint and variety in various fields was furnished by one of the students interviewed by the Mellon Foundation research staff, Miss Lorraine Bender. Miss Bender was majoring in one of the natural sciences; and as we have indicated earlier in this chapter, students in the natural sciences at Vassar College tend to be on the average somewhat more conventional than their fellow students.

Miss Bender was, however, quite an exception. In originality of thought and outlook she resembled philosophy and English majors much more than her fellow students in the natural sciences. She was in fact very interested in philosophy, drama, and literature and took courses and read widely in these fields. Essentially Miss Bender was less concerned with the more routine matters of knowledge and procedures in her field than she was with their wider theoretical and philosophical import. It might be said that her scientific interests were somewhat after the fashion of the theoretical physicists and mathematicians of recent years.

Now it happens that the faculty in the natural science departments who knew Miss Bender did not have a high opinion of her as a student despite their ready acknowledgement of her considerable breadth of knowledge and interest. She was for them too disorganized, often too abstract, too unconcerned with the routines of basic textbook knowledge and laboratory procedures. The situation was very different in the case of Miss Bender's other teachers in philosophy, drama, and literature. They had the highest regard for her. These differences in evaluation of Miss Bender emerged clearly in the ratings of the students in the Mellon Foundation's research sample that were made by the faculty. The ratings given Miss Bender by the natural science faculty on such characteristics as creativity and originality, the extent to which the student being rated approaches the faculty member's notion of the ideal Vassar student, and general intellectual capacity were appreciably lower than the ratings made by faculty members in the arts and humanities.

Naturally the relatively low esteem in which Miss Bender was held by her teachers in the natural sciences was not lost upon her. Her grades in her science courses were lower than those in her arts and humanities courses and her relations with science faculty less cordial than those involving other faculty. Nevertheless Miss Bender was unwilling to change her major. She was convinced that her views of what her chosen field should be like were right, even though they did not coincide with those of her teachers. And she was convinced that she would eventually make valuable contributions in her field. So Miss Bender was intent upon continuing her studies after graduation, confident that she would meet up in graduate school with colleagues among students and faculty who shared her thoughts as to what her chosen discipline ought to be.

The somewhat negative attitude toward Miss Bender as a student on the part of her science teachers is understandable enough. To some extent she lacked the orderliness of approach, perhaps the discipline of thinking out of which much of science is fashioned. But it does appear that perhaps she possessed compensatory qualities which her teachers may have overlooked. Miss Bender perhaps possessed a freshness of approach that can have a salutary effect on her field. Her qualities of mind and thought that are more characteristic of majors in the humanities than they are of students in the natural sciences may be the very avenues for discovery of new ways of looking at things in her field. At the very least, it would appear that Miss Bender ought to have had a chance to try, that is, the opportunity to demonstrate at least to herself that she could or could not be a successful natural scientist. Not that attempts were made to bar her from continuing as a science major. Her grades were reasonably good. But all in all Miss Bender's experiences were such as to make a natural science major of her temperament and outlook think twice about remaining in the field.

In such a fashion various disciplines tend to recruit adherents in their own image, thus cutting down upon potential sources of variety. We cannot with any authority speak for other fields, but in the newer social sciences there seems to be a premature need to define roles, to specify content, to establish standards—all of which serves to introduce an artificial hardness into the social scientist's materials, forcing him to chip away at clay, as if it were marble.

This same kind of desiccation seems also to have invaded a number of classrooms, particularly in applied fields where there is a desire to manufacture an intellectual discipline out of an amorphous body of techniques. Students themselves can be a strong force for narrowness in their insistence on the removal of ambiguities and on intellectual respectability. Here the selection of students can be an important factor. We know that certain kinds of students have a much greater tolerance for ambiguity and are much more open to stimulation by complex and amorphous ideas than others.

Selection procedures, formal and informal, should not aim merely at attaining some single ideal of "quality." They ought to aim at acquiring a group of students among whom an atmosphere conducive to progress and intellectual adventure will prevail. In this context the "average" becomes a very meaningful concept. Small differences in mean scores can mean a great deal in terms of the proportion of students having certain characteristics and thus, by implication, in terms of the overall atmosphere of the group. By way of illustration, we can look at scores on two measures which previous research (Brown, 1959) had shown to be consistently related to faculty nominations of ideal students at Vassar College—verbal intelligence and social maturity (the reverse of authoritarianism). Students high on both scales presumably have superior capacity to learn and also superior readiness to accept new ideas and viewpoints. Approximately 30 per cent of all Vassar students were above their class averages on both scales and 30 per cent were below average on both. But in one large major group almost half the students were in the preferred category and only about

15 per cent were in the non-preferred category. In another large field the opposite was true. Only 15 per cent were above average on both measures, and half were below average on both. One could expect considerable differences in the general level of class discussions and the climate of intellectual interaction in these two groups. Quite likely much greater differences would be found in schools having more heterogeneous student bodies.

A better understanding of the ways different personality traits relate to different kinds of intellectual pursuits would not only provide a sounder basis for selection of students but also for counseling the individual student in his choice of a field of study. Guiding the student toward a field that best fits his present characteristics tends to preserve the status quo both in the individual and in the field he enters. Ideally the student ought to pursue the curriculum that would produce in him the most beneficial growth, even if it meant taking a course in which he did badly and had a very trying time. But in the face of academic and social pressures to get good grades, the demands of employers that people study whatever it is they plan to work at, and the general "materialistic" view of education as preparation rather than as development, it is understandable that students, with the blessing of their counselors, play it safe.

Because students who "play it safe" in their educational decisions are likely to pass through college with fewer conspicuous troubles than others, the impression may grow among educators that this business of helping each student to find his most comfortable niche works pretty well. A closer look at students who by necessity or inclination do "play it safe," however, reveals that such a course can sometimes be educationally tragic.

Consider the case of Miss Margaret Drake who majored in a natural science at Vassar College. Miss Drake entered college with a natural science major in mind and with some practical notions for work after college, for example, working in a laboratory. Miss Drake had little interest in literature and the humanities at the time of college entrance. She had not fared well in these courses in high school and had regarded them pretty much as requirements to be got out of the way.

It developed, however, that Miss Drake's freshman English course captured her fancy. Although her work in freshman English was but mediocre, her grade for the course being a C, Miss Drake decided to take another course in English as a sophomore. She continued her natural science major, but the notion had entered her mind that perhaps majoring in English and literature might really be more interesting.

Miss Drake's experiences in her sophomore English class soon dispelled her thoughts about majoring in English, however. She found the work extremely difficult. The nuances of feeling contained in a poem or the motivations of characters described in a novel often escaped her, and she wrote slowly with but little style. Miss Drake's papers hardly measured up to the standards of performance desired by her English teacher, and the comments on her papers reflected this. After she had turned in and had got back several papers with her teacher's comments, she began to dread new assignments. Moreover, Miss Drake felt quite inferior to most of her fellow students in the class. They seemed to grasp things much more readily, and often their remarks in discussions reflected an awareness and insight that Miss Drake thought she could hardly hope to possess ever.

Meanwhile Miss Drake's experience in her natural science courses were quite different. She did well in these courses with a minimum of effort. She felt a sense of control over the subject matter that eluded her in English. So at the end of her sophomore year, Miss Drake decided definitely to continue as a natural science major, and she took no additional literature courses. This decision was not made without some regrets. In her senior year Miss Drake said: "I wish I could have continued in English. Something in me wanted to. Most of all I wish I could have taken a course in creative writing. But I know I wouldn't have been any good at it."

Superficially, Miss Drake's is the story of someone making a realistic adjustment to the facts of life. But from the point of view of the oft-repeated claim that college is a place where one's intellectual potentialities may find their fullest realization, her case is an academic atrocity story, one that is probably repeated many times in each collegiate generation. It must be noted that the emphasis in academic circles in recent years on excellence of performance, on specialization, and on early choice of major field can only tend to increase the incidence of such cases.

Miss Drake's experience is especially poignant because she had the desire for greater educational growth and was prevented by external forces from realizing it. The more typical case is that in which the principal resistance to educational growth comes from within the student himself--the case of the student who goes to college to attain certain practical ends and wants no one to meddle with his interests and values.

The underlying educational problem is the same in both cases, however: to what extent should higher education concentrate on strengthening whatever is strongest in the student (we might call this the process of "enhancement") and to what extent should it concentrate on developing those aspects of the student's personality that are underdeveloped (this could be called the process of "activation"). Both of these processes are legitimate aims of education. Both of them pertain to important aspects of personality development. But by failing to distinguish between them, educators have tended to emphasize almost exclusively the enhancement function of education and to leave the actuation of students' latent potentialities almost entirely to chance.

We have been considering the relations between personality and intellectual pursuits only as they concern people's work in various fields. In the larger cultural arena where one field impinges on another and the work of various fields affects society as a whole, these relations are if anything more pertinent. Consider the much-discussed problem of the responsibility of the natural scientist for the uses to which his discoveries are put. Here it is often a matter of people in the humanities bringing their values to bear on physical scientists. It is of importance to note that humanists may be different kinds of people from physical scientists and may have rather fundamentally different values, but the issue is more complicated than that. As various findings reported in this study suggest, the typical physical scientist may have a way of relating to other people that is different from the ways of non-scientists, and moreover, this way of relating to people may be intimately tied up with his functioning as a scientist. It may not be merely his work that is specialized;

he may be a specialized personality as well. Whether this is good or bad and whether or not something can or should be done about it, it is important to try to understand it.

Some Possible Next Steps. A good deal more research in these matters is needed, some of which need not be aimed at any particular theoretical solutions but merely at digging out information we can be fairly sure is there. Anyone interested in carrying out a comparative study of people in different fields of study will have no difficulty finding worthwhile psychological measures to apply. It does appear that perhaps certain tests have provided about all the information they can supply, namely, general intelligence tests, tests of liberalism of opinions, and tests of adequacy of psychological adjustment. More specialized tests of mental abilities, attitudes, and personality characteristics are available, and almost none of them have been used in this kind of study. In addition all sorts of psychologically relevant biographical data could profitably be studied.

Future studies will do well not only to use a greater variety of measuring instruments but also to extract more information from the scores obtained. There has been a tendency for workers in this field to under-analyze their data. They have usually been content with comparing mean scores for various groups, but Wolfle's (1954) treatment of intelligence test data, discussed earlier in this section, demonstrates what can be gained by examining scores for upper and lower quartiles of students as well. Comparisons of attitude or personality test scores are often inconclusive because it is not known to what extent the observed differences may be due to differences in intelligence and socioeconomic status. Analysis of covariance techniques, which could control these factors statistically, have rarely been used.

Multivariate techniques, which are ideally suited to studies in this area, are still used by only a few researchers. Even a simple cross-tabulation of results would probably bring to light many interesting facets of the data.

One of the earliest studies (Harris, 1934) is one of the few that has employed this valuable device. Here is an illustrative finding (because of the small number of subjects involved in this comparison it cannot be taken as anything more than illustrative): when subjects were classified according to major field, engineering and business majors scored lowest on esthetic interest; when subjects were classified according to religion, Jews scored highest. But cross-tabulation showed that Jews who were engineering students scored about as high as other Jews on esthetic interest, while Jews who were business majors scored about as low as other business majors. Other kinds of two-way classifications, such as major field and level of intelligence or major field and sex, are of such general interest that it would be well to employ them routinely.

In addition to survey studies, more complex studies need to be carried out. As we have already indicated, there is need for longitudinal studies to identify early determinants of choice of field, for studies measuring personality changes during college as a function of curriculum, and for studies of people who switch from one field to another. Some other likely possibilities are studies of people who have similar personality profiles but are in different fields, and conversely, people in the same field who have different personality profiles.

These studies are all of a strictly empirical sort. They should produce information of considerable intrinsic interest, but they will become theoretically relevant only in the light of later developments. To the person who is seriously interested in the theoretical possibilities of research in this area, however, a more direct approach is available. It would involve going above existing categorizations of fields of study and sorting out groups of intellectuals who seem, on quite abstract bases, to be functioning in similar ways intellectually—who seem to be using formally similar kinds of information and to be asking questions and carrying out operations to answer them that are also formally similar. When the groups are thus designated on a purely intellectual basis, abstracted from all the practical, material, and institutional distinctions that exist between fields, it would be most enlightening to see whether they could be differentiated in ways that have psychological meaning. Once such patterns had been identified, they could be used in carrying out much more refined examinations of people in different fields of study than those which have been reported here.

A positive step in this direction is reported in a study by Gough and Woodworth (1960), which may well serve as a standard of care and thoroughness for future studies along this line. They developed a set of items describing various "stylistic" aspects of research work; for example, "Likes to play his hunches in research work; is guided by his subjective impressions" and "Seeks out the help of others when he hits a trouble spot in his own research." They had each of 45 research scientists sort these items according to how well they described his own modus operandi. They then used factor analysis to identify eight types of scientists distinguished by their research styles. Scientists representing each type were then given psychological ratings and tests so as to obtain fairly integrated descriptions of each stylistic type. This basic procedure could easily be extended to other kinds of intellectual activities and modified to answer different kinds of questions. Results of such work are almost sure to produce more significant bases for comparing groups.

Much still needs to be done at a less sophisticated level, however, and our last suggestion is addressed to people engaged in other kinds of psychological studies. We ask that they consider differences between fields of study as a worthwhile side issue. It usually requires little extra work to break scores on college students down into major-field groups, and much useful information has been obtained in this way from studies principally concerned with some other kind of comparison.

G. Changes in Six Decades of Some Attitudes and Values Held by Educated Women

Changes in the climate of American opinion and in the character structure of Americans are a never-ending object of interest and curiosity for observers of our social scene. In the last century such observers were likely to be men of letters, if not actually literary men proper. Tocqueville, Mark Twain, Henry James come to mind as a few examples. In recent years, since the first World War and particularly in the last generation, this function has been assumed increasingly by social scientists. They and the critics rather than the creative writers have been the ones to tell us what is going on in American life. Lionel Trilling sees in this phenomenon indication of the decline of the novel. For example, it is difficult to think of a novel that tells us as much about what it is like to be a woman today as The Bostonians (James, 1945) tells us about what it was like to be a feminist in 1875 or thereabouts. For the former kind of information one is likely to read Simone de Beauvoir or Margaret Mead. Be that as it may, those social scientists who have devoted themselves in recent years to complex analysis of the American social scene have received considerable attention. They have been widely read, and they have had considerable influence. Of late the publications of some social scientists, philosophers and theologians with social scientific interests, and thoughtful people who might be described as on the fringes of social science, for example, in the publishing business, have received the kind of attention formerly reserved for major works of fiction alone.

For the most part, analysts of long-term trends in American culture have had to operate without the benefit of what we now regard as indispensable material to a proper study of people or social events, that is, interviews, questionnaires, planned observation, and the like. Such techniques were little utilized prior to the '30's, and only since the end of World War II has any sizable and complex body of data been built up systematically in the social sciences. Let me interject that by social science in this context I mean the newer ones—cultural anthropology, psychology, sociology—and I exclude those with a long tradition, for example, history and economics. Which is not to say, however, that systematic and reliable data bearing on long past events are completely and forever unavailable. Considering the importance of the topic there is a considerable burden upon research workers in the social sciences to contribute what they can to the body of knowledge about changes in American culture and character.

The activities of the Mellon Foundation at Vassar College (Sanford, 1956) have provided such an opportunity. As part of the general research program some opinions and attitudes of Vassar alumnae of various periods going back as far as the Class of 1904 have been explored (Freedman, 1959). The Mellon Foundation is a research venture into the mysteries of personality development during the college years. Attention has been centered on current students, but studies of alumnae have occupied a prominent place in the scheme of things. Alumnae groups have been studied by a variety of methods—test, questionnaire, interview, and assessment devices.

One of the instruments used to measure the kinds of changes that take place in current students has been the California Public Opinion Survey—the 60-item questionnaire containing the familiar F and E Scales, consisting of 32 and 20 items respectively, and the 8 item PEC Scale (Adorno et al., 1950). The questionnaire is administered with the standard instructions. Respondents to each item may select any position from plus to minus three to indicate their degree of agreement or disagreement with the sentiment expressed. No zero or neutral response is permissible. The F Scale was, of course, developed as a measure of authoritarianism, a personality syndrome which has yet to be defined with precision, but which nevertheless is predictive of behavior in a variety of situations. Among many traits which have been subsumed under the rubric of authoritarianism are compulsiveness, rigidity, intolerance of ambiguity, punitive morality, submission to power, conventionality, cynicism, and anti-intraception. The E Scale is a measure of the related phenomenon of ethnocentrism, the disposition to glorify ingroups, family, country, social class, and the like, while attributing negative qualities to outgroups, for example, Negroes or foreigners. The PEC Scale, that is, Political Economic Conservatism, has been found to possess little reliability as a scale, chiefly because of its brevity, and in our studies no attempt has been made to deal with PEC scores as such. The items of the scale have been utilized for their individual contributions, however.

In order to obtain data on alumnae comparable to those available for current students the California Public Opinion Survey was included among the tests and questionnaires administered to the alumnae groups that we studied. This paper is concerned with comparisons among the various alumnae groups and with comparisons between the alumnae groups and current students on the F and E Scales. Some comparisons using individual items will also be reported.

Samples. The Classes and numbers involved are:

(1) Eighty-five members of the Class of 1904, almost the entire class of surviving alumnae.

(2) Forty-three members of the Class of 1914, tested at a class reunion. How representative these women are of their entire class is, of course, an open question. As we shall see shortly, however, alumnae who attend reunions appear to yield test results much like those obtained from alumnae who do not attend reunions but who respond to invitations by mail to cooperate in a scientific survey.

(3) Seventy-three alumnae of the Classes of 1921-24. Sixteen were tested at a reunion. The remaining 57 are members of the Class of 1923 who responded to mail invitations to participate. The two separate means differ by only .01 of a point, the standard deviations differing by 3.09, an insignificant amount.

(4) Fifty members of the Classes of 1929-35 who participated in a three-day assessment study at Vassar College.

(5) Seventy-seven alumnae of the Classes of 1940-43. Thirty were tested at a class reunion, the remaining 47 being members of the Class of 1943 who responded by mail. The additional 34 returns yielded a mean 4.67 points greater and a standard deviation 4.29 points lower, neither difference approaching significance.

(6) Finally, 200 members of the Class of 1956, chosen at random from a total sample of 378, the latter figure comprising almost the total graduating class.

The returns of the Classes of 1929-35 were obtained four years ago. The Class of 1956 was tested shortly before graduation. The remaining returns have been obtained within the last two years.

Before reporting our results some attention to the general nature of the samples is in order. First, of course, we are dealing only with women—and with the kind of women who go to colleges like Vassar—highly intelligent women of relatively favored socio-economic backgrounds. Not much is known about the nature of possible changes in the backgrounds or characteristics of women who have gone to college in various periods of this century. We do possess knowledge that now as compared to the early years of the century Vassar has fewer students whose parents are clergymen, teachers, or in literary professions. The percentage of professional versus business backgrounds has not changed, but the nature of the professions has. Now law and medicine are more heavily represented. Since 1930 more foreign students and members of minority groups, particularly Jews, have been accepted as students. The proportion of such students is still fairly low, however. Considering everything I am of the opinion that our samples possess a degree of homogeneity of background that would seldom be found in studies designed to cover so wide an age range.

It should be noted that our samples of alumnae are confined to women who are members, although not necessarily active ones, of the alumnae association. Those graduates who have maintained no contact with the college in recent years are not represented. Sixty to 70 per cent of the alumnae to whom letters were sent responded by completing and returning the tests, and, of course, the extent to which the results of the non-respondents may differ from those reported in this paper is unknown.

Results. Table 5 presents the means and standard deviations on the F Scale for each of the above-mentioned groups.

Several trends are immediately apparent. The Class of 1904 is easily significantly higher according to the t test than any other group. Nineteen hundred and fourteen and the early '20's are paired with the next highest means, the means of the two groups being less than a point apart. The mean for 1914 differs from that of the '30's at the .06 level of significance and from the '40's at the .05 level. The '30's and the '40's are the groups with the lowest means, 87.98 and 87.56 respectively. For the Class of 1956 we have a mean of 95.09, which differs from that of the '40's at the .03 level of significance and from the '30's at the .05 level. Nineteen hundred and fifty-six, is, of course, significantly lower than 1904 but not lower than 1914 or the early '20's. Thus, although the mean of 1956 differs from that of the early '20's, the level of significance is only .12.

In short, we find 1904 to be the highest on the F Scale, 1914 and the '20's paired as the next highest, and the early '30's and '40's lowest of all because of the significant rise for the class of 1956. Probably this is as good a time as any to say that I think that these results mean something. I do not consider them to be largely the product of a tendency to agree with fatuous and bombastic statements—a matter of response set, in short. Recent work by Brown and Datta (1959), Webster (1958), and Christie, Havel, and Seidenberg (1958) demonstrates that authoritarianism cannot be explained by acquiescence. Thus, for a sample of Vassar students, a highly reliable and experimentally independent measure of response set (KR 21 = .93) correlates only .26 with the F Scale (Webster, Freedman, and Sanford, 1957).

An interesting finding is the discovery that the earlier groups are likely to adopt more extreme positions in response to individual items. Chi square tests of the significance of the difference for proportions demonstrate that 1904 and 1914 differ significantly from the early '20's and subsequent groups in their use of "three" responses. Later groups adopt more moderate positions. They are more likely to respond with a "one" or a "two." This finding lends support to the notion that as compared to earlier periods in our history, the

Table 5

Means and Standard Deviations on the F Scale

Class(es)	N	$\bar{x}$	S.D.
1904	85	121.14	35.84
1914	43	99.53	33.99
1921-'24	73	100.96	28.86
1929-'35	50	87.98	22.15
1940-'43	77	87.56	24.44
1956	200	95.09	23.87

recent American scene has been characterized by less fixity or greater flexibility of opinion—or perhaps, greater conformity or homogeneity of opinion.

As one would anticipate, and as Table 6 indicates, results for the E Scale display a similar pattern. Nineteen hundred and four is highest of all, significantly higher than 1914 and 1921-24 at the .01 level. The means of 1929-35 and 1940-43 differ from the mean of the early '20's at the .17 and .02 levels of significance respectively. Unlike the situation with the F Scale, however, there is no significant rise on E for 1956.

Discussion. How do we account for the fact that alumnae of some classes and decades differ widely from others in the kind of general outlook measured by these scales? Is it due to chronological age, that is, a matter of experience rather unique to a time of life? Is it a function of childhood conditioning, a predisposition to a particular quality of outlook in adulthood as a consequence of having been a child at a certain period of American life? To what extent is current outlook a reflection of the influence of schooling, chiefly perhaps, college experience? It is difficult, of course, to attempt answers to such questions. As the psychoanalysts say about complex intrapsychic phenomena, the attitudes measured by the statements of the California Public Opinion Survey are likely to be overdetermined.

We do, however, possess some leads. First, I am inclined to rule out chronological age as a cogent explanatory factor. While on such a basis one could account for differences between groups of women widely separated in age, this hardly explains the large differences that are found between members of adjacent decades, for example, 1904 compared to 1914, or 1921-24 compared to 1929-35. Why should women averaging 74 years at the time of testing respond differently from women who are 66 on the average, or why should women of 47 at the time of testing differ from those who are 43?

The matter of the contribution of childhood experience to test scores in later life is, of course, one on which little empirical information can be brought directly to bear. My general view of the matter would be that at least in recent times, American culture has not been an authoritarian one. So I should be of the opinion that only a minority of individuals would have undergone the kinds of childhood experiences delineated in The Authoritarian Personality (Adorno et al., 1950), experiences which would be expected to lead to rigid fixation upon authoritarian sentiments. To put this in another way, I should be inclined to think of most individuals who express authoritarian views as open to new experience and the possibility of change. And in educated people I believe that the period of greatest change in general social outlook is likely to be the college years. Events at large on the national or international scene often have considerable influence upon the attitudes of college students, as we shall see shortly, when we consider the individual items of the California Public Opinion Survey.

In short, I consider experiences of the college years to be a major source of the variations in attitudes by decade which we observe. Increasing liberalization of social outlook in American culture during the years of this century has in general been reflected in comparable changes in college students (although perhaps in the last few years this trend has been reversed in some respects). And these changes have apparently persisted after college.

Table 6

Means and Standard Deviations on the E Scale

Class(es)	N	$\bar{x}$	S.D.
1904	85	64.30	27.58
1914	43	47.86	23.41
1921-'24	73	48.92	21.37
1929-'35	50	44.36	17.03
1940-'43	77	41.70	16.45
1956	200	44.70	17.97

Results obtained with current students support this theory. Incoming freshman classes at Vassar yield means on F ranging from 115 to 118 with a standard deviation of about 25. Means for graduating seniors cluster around 95 with a standard deviation of about 24. Some evidence that the sentiments expressed by seniors persist with but little change is provided in Table 7. It may be seen that when alumnae who were given the F and E Scales as seniors are retested three and four years later, there is very little change. At least for a period of three or four years after graduation, the alumnae seem to be adhering rather closely to the views expressed as seniors.

But perhaps study of the individual items provides the most support for the notion that the tenor of the times at which the alumnae were in college is intimately related to the attitudes they now display. In the discussion to follow the significance of the difference between groups for scores on individual items has been calculated using the chi square technique, utilizing two by four tables rather than two by six tables. The "two" and "three" response categories at each extreme have been combined, because in the smaller samples of alumnae expected frequencies in the "three" cells fall below acceptable levels for calculation of chi square.

Consider the item, "What this country needs most, more than laws and political programs, is a few courageous, tireless, devoted leaders in whom the people can put their faith." As Table 8 indicates, the '40's is the only group in which the majority, 57 per cent, reject this view of leadership. Although only the differences between the '40's and the '20's and the Class of 1904 are significant, the trend seems rather clear. In a similar vein the early '40's is the group most emphatic in rejecting the notion that, "Obedience and respect for authority are the most important virtues that children should learn," with 77 per cent responding negatively. In comparison with the '40's the differences are significant for 1904, 1914, and 1956, and P = .19 for the Classes of 1921-24.

The Classes of 1940-43 respond most negatively to the statement that "Now that a new world organization is set up, America must be sure that she loses none of her independence and complete power as a sovereign nation," with 82 per cent of the group expressing disapproval of the sentiment expressed. Here the early '40's differ significantly from 1904 and 1956, with the difference from 1921-24 falling at the .08 level of significance. In the case of the item, "Human nature being what it is, there will always be war and conflict," the early '40's are closest to 1914 and 1904 in expressing disapproval. Forty-seven per cent of the Class of 1914 reject the item, 44 per cent of '04, and 37 per cent of 1940-43, with the remaining groups expressing disapproval by smaller margins.

The above comparisons and the fact that the Classes of 1940-43 have the lowest E Scale score of any group would seem to reflect the attitudes of the years just prior to and during World War II in the United States: optimistic views of man's potential and of post-war society, fervent internationalism, alertness to the possibility and dangers of dictatorship or authoritarian rule, and the like.

As a sidelight it is interesting to note that the generally liberal position of the alumnae of the early '40's in social and broadly political matters is not accompanied by anything approaching economic liberalism or radicalism. Vassar alumnae in general are quite conservative in economic affairs, but even

Table 7

Means and Standard Deviations on the F and E Scales for Alumnae Who Were Tested as Seniors

Scale	Class	N	Date of Retest	Seniors	Alumnae
F	1955	74	1959	$\bar{x}$ 91.16 SD 23.36	$\bar{x}$ 93.62 SD 24.60
F	1956	79	1959	$\bar{x}$ 99.34 SD 21.94	$\bar{x}$ 96.14 SD 22.00
E	1955	74	1959	$\bar{x}$ 44.69 SD 15.49	$\bar{x}$ 45.37 SD 17.23
E	1956	79	1959	$\bar{x}$ 45.56 SD 17.76	$\bar{x}$ 44.84 SD 14.87

Table 8

Percentages of Rejection of Selected Items of the Public Opinion Survey

Item	Class(es):	1904 N=85	1914 N=43	1921-'24 N=73	1929-'35 N=50	1940-'43 N=77	1956 N=20
What this country needs most, more than laws and political programs, is a few, courageous, tireless, devoted leaders in whom the people can put their faith.		17	49	32	42	57	44
Obedience and respect for authority are the most important virtues that children should learn.		35	49	62	70	77	51
Now that a new world organization is set up, America must be sure that she loses none of her independence and complete power as a sovereign nation.		34	72	66	75	82	58
Human nature being what it is, there will always be war and conflict.		44	47	21	32	37	30
It is only natural and right for each person to think that his family is better than any other.		62	65	78	66	69	52
Some day it will probably be shown that astrology can explain a lot of things.		81	87	78	94	94	80
Science has its place, but there are many important things that can never possibly be understood by the human mind.		29	58	37	53	42	39

in this conservative company the alumnae of the early '40's are distinguished by the fixity of their position. Thus, 92 per cent of the group reject the statement that, "It is up to the government to make sure that everyone has a secure job and a good standard of living." The majority of alumnae of the early '30's oppose this idea also, but as one would expect, by a reduced majority, that is, 72 per cent.

Similarly, it is likely that the views of current students may to a considerable extent be regarded as reflections or functions of certain large-scale trends in American life. Turning again to the item, "Obedience and respect for authority are the most important virtues that children should learn," we find that only 51 per cent of the Class of 1956 reject this item, in comparison with 77 per cent for the Classes of 1940-43 and 70 per cent for the Classes of 1929-35, with P <.001 and = .17, respectively. One has to go back to 1914 and 1904 to find smaller percentages of rejection than that of 1956, 49 per cent and 35 per cent respectively. "It is only natural and right for each person to think that his family is better than any other." Table 8 indicates that the Class of 1956 rejects this statement by the smallest majority of any group. P is significant for the difference between 1956 and the early '20's, = .08 for the difference between 1956 and the Classes of 1929-35, and = .07 for the difference between 1956 and 1940-43.

"Some day it will probably be shown that astrology can explain a lot of things." Eighty per cent of the Class of 1956 disagree as compared with 78 per cent for the early '20's. The margin of disagreement is greater for all other groups. P = .08 for the difference between 1956 and 1914.

In general I believe that we may see in the above comparisons of the Class of 1956 with the other groups some of the smugness and the attachment to the status quo which is characteristic of many segments of American society today. Similarly we may discern some of the irrationality, the phony kind of romanticism, perhaps, that has become prominent in our current life, as witness our recent shallow religious revivals.

If we consider the Public Opinion Survey, particularly the F Scale, in its more purely psychological aspects, that is, if we think of it as telling us something about the nature of the personality, as a clue to the way in which inner impulses are handled, and as an index of the amount of self-insight possessed by the subject, the conclusion seems obvious that social and individual psychological processes parallel one another rather closely. Changes in American society and culture seem to be accompanied by changes in individual personality structure as well as by changes of opinion and attitude.

VI. Abstract: Analysis was carried out of personality test and interview data that had been collected by the Mellon Foundation at Vassar College in the years 1952 to 1959. The data were based on studies of both undergraduates and alumnae. Following are summaries of the procedures and results of the principal studies that were carried out.

A. Development of the Vassar Attitude Inventory.

The Vassar Attitude Inventory (VAI) was developed in order to provide answers to several questions about the Vassar College Student population. These original questions were:

(1) What changes do Vassar students undergo in authoritarianism during four years of college?

(2) What changes do they undergo in readiness to recognize, express, or act out impulses?

(3) What changes take place with respect to sex-role identification?

(4) What are the attitudes that most sharply distinguish seniors from freshmen?

The following scales were developed:

Social Maturity. This scale was developed by selecting items that correlated significantly with scores on the California F Scale. The 149 items meeting this requirement were scored in the direction opposite to that of their correlation with the F-Scale so that Social Maturity may be said to represent the negative pole of authoritarianism.

Impulse Expression. This scale was developed by first setting up as a criterion a rationally scored scale composed of items which were judged relevant to impulse expression. These included items whose content pertained to such characteristics as impulsiveness, irrepressibility, assertiveness, adventurousness, aggressiveness, rebelliousness, restlessness, excitability, and unconventionality. A 123-item test having KR-21 reliability of approximately .90 was obtained.

Developmental Status. This scale was developed by identifying all of the items in the pool of 677 items that discriminated between freshmen and sophomores at the .05 level of significance in three different samples of students. One hundred twenty-three items so selected formed a scale with a KR-20 reliability of .84. The chief factor in this scale is one termed "rebellious independence." It contains items indicating rebellious attitudes toward authority figures such as parents, the church, the state, and the school.

Masculinity-Femininity. Items from three masculinity-femininity scales (the MMPI-MF scale, the CPI-Femininity scale, and 80 items found useful by Drake) were combined to form a single large scale that was used as the initial criterion for item selection. Three clusters of items were developed from the original scale. They have been termed Preference for Masculine Role, Lack of Feminine Passivity, and Lack of Feminine Sensitivity.

Dominance and Confidence. This is a 92-item scale with a reliability of .90. It measures confidence, imperturbability, and leadership qualities.

Social Integration. This is a measure of response tendency. The largest percentage of items involve avowals of good psychological health and freedom from troubles and symptoms.

Repression and Suppression. This scale was designed to measure the tendency to give positive or negative responses. The scale consists of 157 items having a KR-21 reliability of .93. The scale emphasizes denial of negative attributes.

B. A Factor Analytic Study of the Vassar College Attitude Inventory Scales.

A factor analysis was carried out involving 17 variables. The first eight variables are scales of the Vassar Attitude Inventory, as follows: Dominance and Confidence, Social Integration, Impulse Expression, Developmental Status, Social Maturity, Masculinity Femininity I (preference for traditional feminine role), Masculinity Femininity II (feminine passivity), and Masculinity Femininity III (feminine sensitivity). The following 9 scales are as follows:

(1) Rebellion Against Parental Authority—a four-item scale derived from responses on a biographical data blank.

(2) Liberalism—a two-item scale derived from responses on the biographical data blank.

(3) The Responsibility Scale of the California Psychological Inventory.

(4) Social Interest—a three-item scale derived from the biographical data responses.

(5) Visiting the school psychiatrist.

(6) The F Scale of the Minnesota Multiphasic Personality Inventory.

(7) The Hypochondriasis Scale of the MMPI.

(8) Adjective Checking—A measure of response set indicative of a readiness to endorse descriptive statements.

(9) Stereotype Rejection—Another measure of response set based on adjective checking indicating the tendency to use a "realistic" versus a stereotyped concept of the "average woman."

Two iterations of Thurstone's complete centroid method of factor analysis were carried out. Six factors were extracted leaving no residual correlation greater than 10. Descriptions of the six factors follow.

(1) The principal and purest determinant of Factor I is the Impulse Expression Scale. At the opposite pole of the factor is Masculinity Femininity II (feminine passivity).

(2) The purest determinant of Factor II is Dominance and Confidence, although loading on Social Integration is high. At the opposite pole are Masculinity Femininity III (feminine sensitivity) and Hypochondriasis.

(3) Factor III is not so clearly defined. Developmental Status and Social Maturity have the highest loadings, but they have substantial loadings on other factors as well. Although its loading on the factor is barely significant, Stereotype Rejection is the purest measure.

(4) Factor IV is most clearly determined by Liberalism and to a lesser extent by the Psychiatric variable. Students who see the psychiatrist while at Vassar are distinguished more by liberal political and religious preferences than by scores on measures of pathology.

(5) Factor V is weakly determined. It has been tentatively identified as a factor of Femininity.

(6) Factor VI has its only significant loadings on the two MMPI Scales and represents some symptom-reporting tendency.

C. Studies of College Alumni.

Studies were carried out by means of tests and interviews of Vassar College alumnae of various periods going back as far as the Class of 1904. In three different graduating classes samples of alumnae who had been tested as seniors were retested three or four years after graduation. The test batteries differed somewhat for the three classes, but each contained a number of scales relevant to the general area of values, attitudes, and opinions, chiefly the California F and E Scales, the Vassar Social Maturity Scale, and the Tolerance Scale of the California Psychological Inventory. Results indicate that there are no clear trends in senior-alumnae differences.

There is no evidence that large-scale shifts in attitudes or ideology occur in the early years after graduation. Studies of alumnae for various decades going back to 1904 suggest that the attitudes and values with which one leaves college have considerable permanence. These findings have considerable educational import. They indicate that for many students changes in values, attitudes, and opinion or lack of such change end with graduation.

Personality development after college was studied for two classes, 1954 and 1955, by means of retesting of alumnae who had been tested as seniors. Both classes were retested four years after graduation. The only change that is significant in both classes comes on the Repression and Suppression Scale, the subjects obtaining higher scores as alumnae than they did as seniors. This finding may be interpreted to mean that alumnae as compared to the seniors are more stable emotionally and more assured socially, less anxious and depressed, generally more confident and imperturbable. The alumnae are also lower than they were as seniors on the clinical scales of the Minnesota Multiphasic Personality Inventory. Studies of young alumnae show that they gain after graduation in feelings of stability, optimism, and contentment and remain unchanged three or four years after graduation in respect to the chief qualities that distinguish seniors from freshmen, for example, lessened authoritarianism and increased freedom of impulse expression and "rebellious independence."

D. Liberalism versus Attitude Sophistication in College Women.

As part of a larger factor-analytic study of the Vassar Attitude Inventory Scales variables were introduced to test for the existence of separate liberalism and sophistication factors. Factors identified as Attitude Sophistication and Liberalism emerged. Attitude sophistication was characterized by expression of liberal attitudes, by rejection of civic responsibility, and by critical, non-acquiescent response set. Liberalism was characterized to a lesser extent by verbal expression of liberal attitudes, more by indications of overt liberal behavior. Liberalism was related to acceptance of civic responsibility and to visiting the college psychiatrist, but was relatively independent of response set. This study indicates that Attitude Sophistication should be separated from Liberalism in future studies of authoritarianism.

E. A Study of Prediction of Fine Distinctions between Related Scales.

A study was carried out in which three judges acquainted with the Vassar Attitude Inventory Scales made predictions based on adjective check lists of ratings that had been made by faculty members of students. The judges were required to predict the adjectives used by the faculty members in describing highs and lows on various scales. The predictions made threw light on distinctions among the various scales.

F. Comparisons of Students in Different Major Fields.

Student groups in various major fields were found to differ significantly on all seven of the Vassar Attitude Inventory Scales. Most of the variation among individuals on these scales could be accounted for by three composite measures, but it was discovered upon further analysis that the curriculum groups differed significantly on only two of these composites. It was therefore possible by algebraic transformation of the scores to isolate two factors that accounted for almost all the group differences and a third factor on which the groups were virtually indistinguishable. One of the factors on which the groups differ is unconventionality, a factor that cuts across the distinction between attitudes and personality traits, for it involves not only unconventional (liberal) attitudes but also unconventionality in the conduct and style of one's life. The other factor on which the groups differ is social confidence. The third factor, the one on which the groups do not differ, is emotional stability.

G. Changes in Six Decades of Some Attitudes and Values Held by Educated Women.

Studies of alumnae demonstrate that many of the attitudes and other personality characteristics which are present at the time of graduation persist with but little change well on into later life. It is also evident that the tenor of the times at which students are in college has an appreciable effect upon the changes that take place. Thus, substantial differences are found among alumnae of different decades which do not seem to be attributable to chronological age.

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This is the Research Manual which goes along with:

Measurement and Evaluation of Change in College Women

Final Report

Mellon Foundation
Vassar College
Poughkeepsie, New York

Mervin B. Freedman, Coordinator

August 31, 1961

VC ATTITUDE INVENTORY

and

VC FIGURE PREFERENCE TEST

Mary Conover Mellon Foundation

RESEARCH MANUAL

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General Characteristics

The VC Attitude Inventory is the second major revision of a multiple score personality test. It is one of the results of five years of research. The general aim of the research, which is still in progress, is to add to our understanding of the processes of learning and personality development in undergraduate students attending a women's liberal arts college. Projects which have led to the development of the Inventory, some of which have already been reported elsewhere (7, 19, 20, 23, 25, 26) were initiated by Dr. Nevitt Sanford, Dr. Mervin Freedman and the writer.

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(Distributed at cost for research purposes, Vassar College, Poughkeepsie, N.Y.)

Dr. Sanford has been mainly responsible for the planning and coordination of the general research program, Dr. Freedman for the intensive longitudinal interviewing program, and the writer for the test development program.

The initial selection five years ago of items and scales for the test battery was motivated largely by considerations of sheer breadth. This was partly due to the fact that very little was known concerning changes in personality during the college years, an area which we believed to be of primary importance. It was first necessary to administer an experimental battery containing a rather large number of previously standardized scales, which, for one reason or another, we supposed might ultimately prove to be useful. The scale and item distributions obtained with the use of this battery were then examined, and responses to particular kinds of item content were studied, in order to gain insight into the meaning of the testing for our subjects. The interviewing program was also very useful here, for it enabled us gradually to become better acquainted with these kinds of subjects, and, consequently, with the interpretations which they were most likely to attach to the items of the various scales. In addition, the use of standardized scales made possible some comparisons with other kinds of populations.

The first experimental battery contained the Gough California Psychological Inventory, or CPI (10, 11), the Public Opinion Survey (1), The Maslow test for Dominance-Feeling in Women (16, 17), the Barron Inventory of Personal Philosophy (2), the Franck Drawing Completion test (6), the LaForge-Suczek adjective check-list (15), and several of the standard scales of the Minnesota Multiphasic Personality Inventory, or MMPI (13). After the first year, that part of the experimental battery made up of verbal personality test items was revised to include all the standard MMPI scales. The decision to have complete MMPI profiles for subjects later proved to be a very useful one. Also retained in the revision were about half the scales of the CPI, the Public Opinion Survey, a true-false modification of the Dominance-Feeling scale, some items selected from the Personal Philosophy Inventory, and some other experimental items. We are greatly indebted to the authors of these instruments. This first revision of the battery contained a total of 677 verbal true-false items. It was administered without changes to the entire freshmen and senior classes of Vassar College for four consecutive years, as well as to alumnae of various ages and to some college samples in foreign countries.

The second, and current, revision of the battery is based upon analyses of the test data obtained during this four year period. It is therefore, at the scale level, an entirely new instrument. About 200 items have been discarded after having already served their purpose in the research; they were judged to be of insufficient value for inclusion in the special scales to be used regularly with our 'normal' college populations. Retained items in the present revision are those which were discovered both on empirical and on theoretical grounds to be useful. Another way of saying this is that the retained items are those which found their way into one of the seven verbal scales, each of which will be discussed later. In addition to these items, 78 new experimental items have also been included; their addition is warranted by theory only. Studies of interview data have indicated that it would be helpful to have more items which tap the following areas: serious intellectual interests, realism concerning plans for marriage, freedom in personal relationships, and freedom from certain peer group pressures. How effectively the new items will actually contribute to the measurement of these characteristics is of course a question which can be answered only by additional research.

The *VC Attitude Inventory* provides reliable *verbal* measures of

Social Maturity (*SM*), Developmental Status (*DS*), Impulse Expression (*IE*), Dominance and Confidence (*DC*), Social Integration (*SI*), Repression and Suppression (*RS*), and Masculine Role (*MF*). Scores on the first three of these scales show increases during the college years; they appear to be useful indicators of personality change (19, 20). *SI* and *RS* also serve as 'validity' scales. *MF* is relatively unreliable for samples of women.

The *VC Figure Preference Test* is a brief new kind of adjunct to the verbal scales, and it has usually been administered with them. Two reliable orthogonal *nonverbal* measures are at present scored from it, namely, Complex Preference (*CP*) and Masculine Preference (*MP*). The total raw scores of the nine scales for each subject can be plotted on side A of the standard score Profile Sheet. Six verbal scales may be corrected for the effects of Repression and Suppression (*RS*) and then plotted (together with the three uncorrected scores, *RS*, *CP* and *MP*) on the Profile Sheet - B.

Directions for Administering

Both parts of the battery are self-administering. They can be given to relatively large groups of men and women in an hour-and-a-half testing session. The necessary instructions appear on the front pages of the test booklets.

IBM answer sheet Form 1100-A-182-REV. is recommended for *VC Attitude Inventory*. A special answer sheet, IBM Form 1000-A-5276, is recommended for *VC Figure Preference Test*. Typical subjects will spend little more than an hour taking the verbal part of the battery, and about ten minutes taking the figure preference test.

For our subjects, omissions have constituted a very small fraction of the total number of responses and have therefore been ignored. Some implications of the validity scale scores, *RS* and *SI*, for assessing test-taking attitudes are discussed later.

Directions for Scoring

Social Maturity (SM), Developmental Status (DS), and Dominance and Confidence (DC) can each be scored with one stencil; each of the other scales requires two.

The items comprising the seven verbal scales of VC Attitude Inventory are identified below. In each case the number of the item as it appears in the test booklet is given, followed by the direction of response ('T' for true, 'F' for false).

* * *

Social Maturity (SM) -- 149 items

1 F
2 F
3 F
5 F
7 F
8 F
10 F
14 F
16 F
18 F
22 F
24 F
26 F
27 F
28 F
30 F
31 F
36 T
40 F
41 F
42 F
47 F
51 F
55 F
56 T
58 F
61 F
62 F
63 F
66 F
67 F
71 F
73 F
74 F
75 F
78 F
79 F
81 F
82 F
84 F
86 F
87 F
88 F
89 F
90 F
91 F
95 F
96 F
99 T
102 F
107 F
108 F
109 F
111 F
113 F
114 T
115 T
116 F
117 F
121 T
122 F
123 F
128 F
131 F
133 F
134 F
135 F
137 F
138 T
141 F
142 F
144 F
145 T
147 F
152 F
153 T
154 F
158 F
159 F
161 F
163 F
164 F
165 T
170 F
171 F
172 F
173 F
175 F
176 F
178 F
179 F
181 F
183 F
184 F
185 F
187 F
190 F
195 F
196 F
198 F
199 F
200 F
203 F
206 F
207 F
208 F
212 F
213 F
216 F
219 F
222 T
223 F
225 F
230 F
233 F
234 F
235 F
236 F
238 F
241 F
242 F
243 F
246 F
248 F
249 F
251 F
253 F
254 F
256 F
257 F
261 F
264 F
266 F
270 F
272 F
277 T
279 F
280 F
281 T
282 F
285 F
286 F
287 F
288 F
289 F
290 F
294 F
295 F
299 F

* * *

* *

Developmental Status (DS) — 72 items

3 F
25 T
26 F
32 T
38 T
40 F
41 F
44 T
45 T
47 F
48 F

52 F
59 T
64 F
65 F
74 F
75 F
77 F
79 F
81 F
83 F
87 F

89 F
94 T
100 F
103 F
105 T
108 F
111 F
114 T
116 F
121 T

132 F
142 T
146 T
151 F
156 F
159 F
163 F
168 F
169 T
171 F

183 F
184 F
191 T
193 F
196 F
199 F
200 F
201 F
204 T
208 F

215 F
218 T
220 F
228 T
239 T
246 F
247 T
251 F
252 T
254 F

256 F
257 F
265 F
271 T
274 F
276 T
284 F
292 F
295 F
296 F

- - - - - - - -

Additional Items which Discriminate Freshmen from Seniors -- 50 items*

12 F
15 F
16 F
19 F
20 T
37 F
43 T
49 T

50 F
60 T
67 F
69 T
70 F
72 T
93 T

96 F
98 T
101 F
109 F
110 T
112 T
120 F

123 T
124 F
125 F
126 F
136 T
143 T
149 T

152 F
154 F
160 F
162 F
166 T
172 F
182 F

190 F
198 F
211 T
221 F
226 F
240 T
244 T

250 F
262 F
270 F
273 F
275 T
278 F
280 F

*For the present revision one item has been omitted in order to reduce overlap of content with items 136T and 211T.

* *

Impulse Expression (IE) — 124 items

1 F
11 T
25 T
26 F
32 T
37 T
38 T
40 F
43 T
44 T
45 T
49 T
60 T
69 T
74 F
76 T
77 F
87 F

88 F
89 F
93 T
95 F
102 T
109 F
110 T
114 T
115 T
124 T
129 T
135 T
138 T
146 T
151 F
159 F
164 T
169 T

175 F
179 F
193 F
204 T
205 T
206 T
207 F
208 F
216 F
218 T
224 T
231 T
239 T
244 T
247 T
250 T
252 T
256 F

274 F
276 T
277 T
283 T
284 F
285 F
288 T
292 F
295 F
296 F
301 T
302 T
317 T
318 T
325 T
326 T
328 T
330 T

332 T
333 T
337 T
338 T
342 T
344 T
354 T
357 T
369 T
382 T
390 T
391 T
393 T
397 T
398 T
402 T
404 T
415 T

424 T
430 F
434 T
436 T
440 F
448 T
454 T
456 T
460 T
463 T
467 T
470 T
471 T
472 T
481 T
492 T
495 T

496 T
499 T
502 T
505 T
508 T
509 T
510 T
516 T
520 T
525 F
533 T
538 T
542 T
546 T
550 T
551 T
553 T

* *

* *

Dominance and Confidence (DC) — 92 items

4 F
6 T
9 F
11 T
13 T
14 F
15 F
17 F
21 F
22 F
23 F
29 T
33 F
34 T
35 T
39 T
46 F
52 F
53 T
54 F
57 T
68 F
76 T
80 F
85 F
87 F
91 F
92 F
97 F
104 T
106 F
118 T
125 F
127 F
129 T
130 T
134 F
135 F
139 F
140 T
144 F
148 T
149 T
150 F
155 F
157 F
162 T
167 T
174 T
175 F
177 F
180 F
182 T
186 T
188 T
189 F
192 F
194 F
197 T
202 T
205 T
209 T
210 F
214 F
217 T
224 F
227 F
229 T
230 F
231 T
232 T
235 F
237 F
245 T
255 F
258 F
259 F
260 T
262 F
264 F
267 T
268 T
269 F
275 T
281 T
283 T
286 F
291 T
293 F
294 F
298 F
300 F

* *

Social Integration (SI) — 99 items

25 F
27 F
38 F
39 T
43 F
58 F
60 F
61 F
69 F
80 F
83 T
85 F
91 F
97 F
110 F
122 F
126 T
127 F
135 F
139 F
142 F
144 F
145 F
146 F
150 F
151 T
155 F
161 F
177 F
180 F
181 F
186 T
189 F
192 F
193 T
202 T
204 F
214 F
217 T
224 F
229 T
230 F
236 F
240 F
247 F
252 F
255 F
264 F
269 F
274 T
277 F
286 F
301 F
303 F
309 F
336 F
337 F
349 T
358 F
368 F
372 F
373 F
375 F
379 F
383 F
391 F
402 F
406 F
413 F
414 F
417 T
418 F
419 T
421 F
425 F
432 F
437 F
440 T
441 F
442 F
444 F
448 F
450 F
461 T
464 F
477 F
482 T
490 F
496 F
505 F
510 F
514 F
518 F
520 F
522 F
529 F
537 F
544 T
547 F

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* *

Repression and Suppression (RS) — 157 items

2 F
4 F
13 F
14 F
15 F
17 F
21 F
23 F
25 F
27 F
31 F
34 F
37 F
38 F
39 T
43 F
46 F
54 F
55 F
58 F
59 F
60 F
62 F
67 F
73 F
76 F
80 F
82 F
85 F
86 F
101 F
102 F
105 F
106 F
110 F
113 F
115 F
117 F
119 F
123 F
124 F
125 F
127 F
132 F
134 F
135 F
139 F
141 F
144 F
145 F
146 F
150 F
154 F
155 F
157 F
173 F
183 F
189 F
193 T
197 T
204 F
205 F
213 F
214 F
218 F
219 F
227 F
228 F
230 F
232 F
235 F
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243 F
244 F
247 F
248 F
252 F
255 F
257 F
259 F
262 F
263 F
267 T
271 F
273 F
276 F
278 F
282 F
287 F
302 F
309 F
314 F
318 F
321 T
324 T
332 F
333 F
341 F
342 F
352 F
353 F
357 F
360 F
376 F
379 F
390 F
391 F
393 F
397 F
399 F
402 F
404 F
405 F
408 F
409 F
410 F
412 T
414 F
424 F
426 F
429 F
434 F
440 T
448 F
453 F
457 F
460 F
465 F
472 F
473 F
488 F
489 F
493 F
496 F
498 F
499 F
501 F
502 F
504 F
505 F
510 F
513 F
514 F
517 F
520 F
522 F
527 F
528 F
529 F
534 F
536 F
542 F
546 F
547 F
553 F

* *

Masculine Role (MF) -- 96 items

5 F(1)*
6 T(2)
13 T(2)
15 F(3)
21 F(3)
27 F(3)
29 T(3)
46 F(3)
66 T(2)
74 F(2)
82 T(2)
88 F(2)
110 T(2)
124 T(2)
126 F(2)
147 T(2)
171 F(2)
173 T(2)
187 F(3)
207 F(2)
210 T(3)
212 T(2)
218 T(2)
221 F
232 T(2)
244 F(3)
245 T(2)
247 F(3)
256 F(2)
267 T(3)
268 T(2)
272 T(2)
273 F(3)
275 T(3)
276 T(2)
277 T(1)
284 F(2)
287 F(3)
306 T(2)
307 F(3)
308 F(3)
310 T(2)
313 T(3)
315 T(1)
346 T(2)
348 F(2)
366 F(1)
370 F(1)
376 F(3)
381 F(3)
385 F(1)
387 F(1)
389 F(3)
390 F(3)
393 F(3)
394 T(1)
395 F(2)
399 T(2)
401 T(2)
404 F(3)
405 F(3)
409 F(3)
412 T(3)
414 F
426 F
428 F(3)
429 F(3)
433 F(3)
438 T(1)
444 F(3)
446 F(2)
449 F(1)
453 F(3)
454 T(2)
458 T(1)
468 F(3)
475 F(1)
476 T(1)
477 T(2)
480 F(1)
485 T(2)
486 T(2)
487 T(2)
491 T(3)
493 T(2)
498 T(2)
504 F(2)
506 F(1)
512 T(2)
524 T(1)
530 F(2)
532 T(1)
533 T(1)
536 F(3)
545 T(2)
546 T(2)

*Numbers in parentheses, (1), (2) and (3), identify items comprising subtests MF I, II and III, respectively.

* *

* *

Experimental Items (Unscaled) — 78 verbal items

297
320
322
323
327
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The scoring for Complex Preference (CP) and Masculine Preference (MP), nonverbal scales of the VC Figure Preference Test, is presented below. The number of the item as it appears in the test booklet is given, followed by 'P' for a preferred, 'N' for a nonpreferred (omission) response.

* *

Complex Preference (CP) — 141 items

1 N
2 P
4 N
5 N
6 P
7 N
8 P
10 N
11 P
13 P
15 P
16 N
17 P
20 N
22 P
23 P
24 N
25 P
26 N
29 P
31 N
34 P
35 N
36 P
37 N
39 P
40 P
41 N
43 P
45 P
47 N
48 P
50 P
52 N
53 N
54 P
55 P
57 P
58 N
59 N
60 P
61 P
64 N
65 P
67 N
68 N
69 N
70 N
71 P
72 P
73 P
76 N
78 P
79 P
80 N
81 N
83 N
84 P
86 N
87 P
88 P
89 N
92 P
93 N
95 P
97 N
98 P
100 N
101 P
102 P
103 N
104 N
105 N
106 P
107 N
109 N
110 P
111 N
112 P
114 N
115 P
118 N
119 P
122 P
123 N
124 N
125 P
126 N
127 N
128 P
129 N
131 P
134 N
135 P
136 P
137 N
138 P
141 N
142 P
143 P
147 N
148 P
150 N
152 P
153 P
154 N
157 P
158 N
159 P
161 N
162 N
164 P
166 P
167 P
168 N
169 P
170 P
171 N
172 N
173 P
174 N
175 N
176 P
177 P
178 N
179 N
182 P
183 N
184 P
185 P
187 N
189 N
190 P
191 N
192 P
193 N
194 P
195 P
196 N
199 N
200 P

* *

* *

Masculine Preference (MP) — 74 items

1 P
4 N
12 N
17 P
19 N
20 P
25 P
27 N
28 P
29 P
33 N
34 P
36 P
40 N
42 N
46 N
48 P
50 P
51 N
52 P
58 P
59 N
61 N
62 P
66 N
74 N
78 N
79 P
82 P
83 N
95 N
96 P
98 P
100 N
101 N
103 P
104 N
107 P
108 N
109 N
110 N
111 P
113 N
115 P
121 N
122 P
123 N
124 P
133 P
134 N
143 N
144 P
146 N
147 P
148 P
150 N
151 P
156 N
157 N
160 P
161 N
165 P
164 N
169 N
171 P
173 N
175 P
178 N
180 P
181 P
182 N
188 N
192 N
193 N

* *

Each of the foregoing items, when answered in the direction indicated, contributes +1 to the raw score on the scale to which it belongs; when answered in the opposite direction, its contribution is zero.

Since nonpreferred responses on CP and on MP are indicated by blanks, that is by omissions, preferred (P) and nonpreferred (N) responses must be scored using separate stencils and then added to obtain the total score. For example, the first subscore for CP is obtained from the CP-P stencil which is punched for the 73 preference marks. The 68 items to be scored in the nonpreferred direction are punched as preferreds on a stencil designated as CP-N. The score on this stencil subtracted from 68, the perfect nonpreference score, is the second subscore. Similarly, adding the score obtained from the MP-P stencil (punched for 34 preference marks) and the score which is the difference between the MP-N stencil score and 40 (the maximum nonpreference score) gives the total MP score.

Standard score equivalents, in the form of 'T-scores,' for which the mean is 50 and the standard deviation 10, for the nine sets of raw scores may be obtained from Table 1. For this standardization, a random sample of 906 Vassar Students, consisting of 453 freshmen and 453 seniors

Correction

In the article, "Correcting Personality Scales for Response Sets or Suppression Effects," appearing in Psychological Bulletin, 1958, vol. 55, pp. 62-64, the ratio of standard deviations in formula [4] is erroneously inverted. Specifically, the second part of formula [4] should read "$- s_X r_{XS} / s_S$." Harold Webster

Correction in the Manual

1) The RS scale itself is not affected by this error, but in formula (3), page 11, the ratio of standard deviations should be inverted.

2) The corrected scales on Side B of the Profile sheet are only approximately correct since the wrong regression coefficients were used.

Correcting Personality Scales for Response Sets or Suppression Effects*

Harold Webster
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Recently there has been increased interest in how personality test scores are affected by subjects' general "tendency to agree" or "tendency to disagree" with the items (1, 2, 5, 7). There has also been a persistent concern with attempts by subjects to convey through their test responses either overly favorable or overly unfavorable impressions (2, 3, 4, 6, 9, 10). For some kinds of tests these two kinds of effects may be nearly indistinguishable, or at least so it would appear from a study by Fricke (5) and from some recent work at Vassar College using personality inventory data (10). The need for continuing research in this area seems more urgent than ever before because of a current popular skepticism about the merits of personality testing (11).

The present paper is not concerned with the psychological aspects of response set or suppression or plain lying by subjects who take personality tests, although it is obvious that these are of greatest importance to psychologists. It is instead concerned with the secondary (but nearly equally important) problem of correcting personality scale scores for such effects. Statistical method in this area seems largely to have been ignored. With few exceptions (3, 7, 8) investigators appear to have believed that empirical trials, in many cases with small samples, would be superior to more logical methods.

Consider a personality scale, yielding raw scores T, comprised of the typical kinds of true-false items of which, say, 91% are scored "true." Cronbach (2) points out that there is much evidence that a subject's score on such a scale can be raised merely by his tendency to respond "true" (or else depressed by his tendency to answer "false"), a characteristic which undoubtedly varies from subject to subject. In order to correct the scores T for this effect, we first must be able to measure the effect. This is known to be easy; in fact, if one scores a large number (say 200) of randomly selected true-false personality test items "true," the total score i will then be found to have rather good reliability, and in addition it will, on logical and operational grounds, be a measure of "tendency to answer 'true' on the test yielding scores i." Of course, if it is desired, obtained reliability may then be increased further by item analyses (10).

It next follows that the correlation between T, the original uncorrected scale scores, and i, the scores for tendency to answer "true," is of immediate interest. Even if the regression should happen to be nonlinear, which is unlikely, this correlation could still be useful as a measure of the linear component actually present. We decide that what is needed is a new score T' for each subject; a score, which, unlike T, is independent of his response set score i. The simplest definition of such

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* Psychological Bulletin Vol. 55, No. 1, 1958

Correction

In the article, "Correcting Personality Scales for Response Sets or Suppression Effects," appearing in *Psychological Bulletin*, 1958, Vol. 55, pp. 62-64, the ratio of standard deviations in formula [4] is erroneously inverted. Specifically, the second part of formula [4] should read " $- S_x r_{xx}/S_x$." Harold Webster a score is

$$T' = T + kt, \qquad [1]$$

where k is determined such that t and T' represent independent measures, preferably for large representative samples. Now T' is *very likely* to be completely independent of t if it is uncorrelated with it, and the condition for such a zero correlation is that the covariance

$$\mathrm{Cov}\,(T', t) = 0. \qquad [2]$$

From [1] and [2]

$$\mathrm{Cov}(T',t) = \mathrm{Cov}(T,t) + kV(t) = 0, \qquad [3]$$

where $V(t)$ is the variance of t. Solving [3] for k,

$$k = -\frac{\mathrm{Cov}(T,t)}{V(t)} = -\frac{s_t}{s_T}\, r_{Tt}, \qquad [4]$$

where the ss are standard deviations.

The required weight k for use in [1] is therefore the linear regression of t on T, so that the new score T', which is "uncontaminated" by response set t, can be written for the i^{th} subject,

$$T'_i = T_i - b_{tT}t_i, \qquad [5]$$

where b_{tT} is this regression coefficient. Allen L. Edwards points out, in a personal communication, that since bt is a regression estimate of T, which may be written $\hat{T}$, the correlation between $(T - \hat{T}) = T'$ and t is necessarily zero because the variance of residual errors cannot contribute to it. He further notes that the cross products for the correlation between T' and t may, referring to [5], be written

$$\sum t(T - \hat{T}) = \sum tT - b \sum t^2, \qquad [6]$$

which is seen to equal zero when

$$\frac{\sum tT}{\sum t^2}$$

is substituted for b.

There seems to be no better way of correcting for "suppression" or for response set. If T and t are not reliable, then [5] will not work, but in this case neither will other methods. Some idea of the effect of such adjustments on the reliability of final scores may be obtained from the data of Table 1.

Examples

The statistics of Table 1 are for seven true-false personality scales which were

Table 1

KR 21 Reliabilities, Correlations and Regression Coefficients Used to Estimate Reliabilities of Scores after Adjustment for RS (N = 906)

Scale T	No. of Items	r_{TT}	$r_{(RS)T}$	$b_{(RS)T}$	$r^a_{T'T'}$
Social Maturity (SM)	149	.88	.35	.46	.85
Developmental Status (DS)	72	.89	-.29	-.54	.86
Impulse Expression (IE)	124	.89	-.58	-.80	.79
Dominance and Confidence (DC)	92	.87	.53	.93	.78
Social Integration (SI)	99	.92	.56	1.39	.61
Masculine Role (MF)	96	.54	.14	.42	.56
Repression and Suppression (RS)	157	.93			

[a] Reliabilities of scales, estimated by Formula 7, after adjustment for effects measured by RS.

developed over a period of five years as part of a general investigation of personality development during the college years (10). The data are for a standardization sample of 906 women undergraduate students, 453 freshmen and 453 seniors. With the exception of MF, the initial reliabilities r_{TT}, as measured by KR 21, are fairly high; reliability of MF, a traditional type of masculinity-femininity scale, would be higher if male subjects had also been included in the sample. RS, which was developed after much item analysis, is comprised of 157 items scored "false" and therefore constitutes a measure of response set "f" according to the previous definition; reversing scoring so that all items were scored "true" would of course simply change the signs of the correlation and regression coefficients of Table 1. The approximate reliabilities of the scales after adjustment for the effects measured by RS are given in the final column of the table. These reliabilities were estimated by

$$\tilde{r}_{T'T'} = \frac{r_{TT} + b^2 r_{(RS)(RS)} - 2br_{(RS)T}}{b^2 + 1 - 2br_{(RS)T}} , \qquad [7]$$

using data of Table 1. More exact values could be obtained by computing the reliability of each scale using the individual adjusted scores T', computed as in [5].

The importance of correlation between RS and the scale to be corrected is illustrated in Table 1, for the more extreme the correlation, the greater is the decrease in reliability after adjustment of the original raw scores. The importance of high reliability for RS itself is obvious from [7]; it is interesting that there is a slight *increase* in reliability for the MF adjusted scores. Reliability remains high for some of the adjusted scales in Table 1, so *theoretically* a second adjustment might be made; for example, some scales might next be corrected for "judged social desirability" of item responses, *if* this could be measured by a reliable and relatively independent scale. The possibility of using more than one adjustment on a given scale has not been investigated empirically.

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was used. The data presented in Table 1 were used in making side A of the Profile Sheet. Side B was constructed from the data of Table 2 and has incorporated in it the corrections based on the RS (Repression and Suppression) score of the subject for six of the nine scales.

Ⓣ[1] Suppose that an obtained raw score Y is to be converted to T, in a distribution of mean 50 and standard deviation 10. Then the required transformation is

$$T = \left(\frac{10}{S_Y}\right)Y - \left[\left(\frac{10}{S_Y}\right)\bar{Y} - 50\right] \quad , \qquad (1)$$

where $\bar{Y}$ is the mean raw score and S_Y is the raw score standard deviation. Side A of the Profile Sheet corresponds to (1).

Ⓣ Suppose, however, that we wish first to correct Y for the effects of Repression and Suppression (RS). It can be shown (25) that a way to do this is to use for the corrected Y score a new score L, which is

$$L = Y - k(RS) \quad , \qquad (2)$$

where k is the linear regression of the RS scores on the Y scores. This regression coefficient is of course

$$k = \frac{S_{RS}}{S_Y} r_{(RS)Y} \quad , \qquad (3)$$

where the S's are the standard deviations, and $r_{(RS)Y}$ is the correlation between *RS* and *Y*. We wish to transform the corrected scores *L* to *T*-scores, just as we changed the uncorrected scores *Y* to *T*-scores by using (1). From (2) the mean *L* score is

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[1] Technical paragraphs preceded by Ⓣ may be omitted by readers who are not interested in statistical details.

$$\bar{L} = \bar{Y} - k(\overline{RS}) \qquad (4)$$

and, from the addition law for variances, the variance of *L* may be written

$$S_L^2 = S_Y^2 - k^2(2S_Y^2 - S_{RS}^2) \quad . \qquad (5)$$

Using *L* in place of *Y* in (1),

$$T_c = \left(\frac{10}{S_L}\right)L - \left[\left(\frac{10}{S_L}\right)\bar{L} - 50\right] \qquad (6)$$

where T_c indicates that the *T*-score is based on raw scores which have first been corrected for *RS*. The other values in (6) are obtainable from (3), (4) and (5). Side B of the Profile Sheet corresponds to (6).

As will be seen later, *RS* is a reliable measure of 'suppression' and 'response set,' and it is therefore recommended that Side B of the Profile Sheet be used for most purposes. For convenience Table 2 contains both the *T*-score equivalents for six verbal scales after correction for *RS*, and the uncorrected values for the three remaining scales, just as the latter appear in Table 1.

Construction and Description of the Scales

The scales will be discussed in the same order in which they appear on the Profile Sheets.

Social Maturity (*SM*). This is a scale of 119 items which appeared in a previous article (26), but *in the present Inventory the item scoring is reversed*. It is made up of items each of which was found to correlate significantly, in two successive classes of freshmen, with the California *F* scale for measuring Authoritarianism (1). Also, correlations of *SM* total scores with the California *E* (Ethnocentrism) scale and with the *F* scale have been in the -.50's and -.70's, respectively, for three successive freshmen classes.[2]

Although there were substantial proportions of the variance of *SM* which were not associated with either *F* or *E*, an item content analysis showed that *SM* measures a kind of nonauthoritarian personality syndrome which agrees well with the original theory of *The Authoritarian Personality* (1). The scale could therefore be labeled 'Nonauthoritarianism,' but there are some good reasons for calling it 'Social Maturity' (19, p.5). When compared with the original *F* and *E* scales, *SM* is less obviously ideological and more personality centered. It is likely that it is better able than the *F* scale to measure *general* primitiveness (or nonprimitiveness) of subjects' conceptions of other persons, and of their relationships with them, and that it is less likely than *F* to be affected either by general political changes or by narrowly functional or transitional speech habits. The belief that *SM* is more personality centered than *F* has been supported by a study of the life histories of 50 middle-aged women college graduates, subjects in an assessment project. Usually, if a subject's *SM* standard score was much lower than her F (or E) standard score, she had during college moved away from an overly authoritarian cultural background, but because of the severity of the childhood conflicts in such families she nevertheless had not escaped authoritarian symptoms of the kind indicated by low SM scores. Conversely, most subjects whose standard scores on SM were higher than those on F were apparently not authoritarian at the personality level, despite comparatively easy adjustments during college and after college, often within cultural groups which could appropriately be described as having authoritarian ideologies.

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[2] In another published report (19), the 123 item version of the scale, which with reversed scoring correlates about the same with *E* and *F* as does the present scale, is referred to as 'F_4'.

'Social maturity' is a very general name for a scale, and it is probably a good idea to keep in mind that, even though the descriptive words or phrases obtained by content analysis necessarily describe those persons who possess 'social maturity,' there is no reason to suppose that such expressions are sufficient for describing them. To judge from experience with the F scale, it is probably easier to specify the ways in which low scorers on SM will be immature than it is to say in what ways high scorers will express their maturity. From the content analysis, however, we can say that low scorers on SM, in comparison with high scorers possess more of the following traits: compulsiveness, punitive morality, authoritarian submission, conventionality, religious fundamentalism, anti-intraception, ego-alien symptomatology, lack of self-confidence, projectivity, cynicism, romanticism, circumscribed aggression and sense of victimization (26, Table 1).

Developmental Status (DS). Using the overall general empirical approach which has already been described, it was soon obvious that Social Maturity (SM) and Impulse Expression (IE) were emerging in the research as the most important personality variables for our samples. This was supported by interview data, and it was also apparent from the fact that these two scales always gave means which were larger for seniors than for entering freshmen. Our confidence in the importance of the two dimensions seemed further justified by an empirically derived *Developmental Status* (*DS*) scale, which contained only those items found (singly) to discriminate seniors from freshmen. *DS* now contains 30 *IE* items and 31 *SM* items (excluding one scored in the opposite direction), among the total of 72 'first factor' items which comprise its final form (See Table 3); and it has moderate correlations with both these scales (See Table 4).

Ⓣ *DS* was developed in the following way. For each of two successive pairs of senior and freshman classes (1953, 1954), the test equation for the significance of the difference between uncorrelated frequencies was solved and critical regions were plotted, making possible the selection of items answered differently, at known nonchance levels, by the two classes. For the first pair of samples, 441 freshmen and 237 seniors, 220 of the 677 verbal items discriminated the classes at the .05 level of significance, and more than half of these were good at the .001 level. Means of 197 items selected equalled or exceeded .10, and of these, 123 were found to hold up (.05 level) in cross-validation random samples of 225 freshmen and 192 seniors.

Ⓣ The 123 item scale seemed to be fairly heterogeneous; but in a third independent random sample of 130 freshmen and 81 seniors, the reliability (KR 20) was .84. It was difficult to discern factors other than a first among the items, although some subtests were constructed by an approximation factor method (27). There appeared to be no differences in item content between a 31 item subtest (KR 21 = .84) and a longer one of 73 items (KR 21 = .88). It was found that reliability could not be raised much above .88 by discarding items (24).

For our populations, the 72 item test of the present Inventory is comprised largely of one factor which might be called 'Rebellious Independence.' Use of the 72 item test is recommended, especially where reliability is an important consideration, but the additional items which might be included to make up a longer test of 122 items have also been retained in the Inventory (See page 6). A more detailed discussion of DS, including some validation studies, appears in a previous report (19, pp.36-41).

Impulse Expression (IE). This is one of the three measures, SM and DS being the others, which increases significantly during the college years. The conditions under which the increase occurs, or fails to occur, are not yet well understood; a more extensive discussion of the meaning of this scale is available elsewhere (20), where it is referred to as the 'J' scale. It has contributed to our understanding of the subtests of Masculine Role (MF), and will be discussed briefly again in that section.

'Impulse expression' was conceived to be a general readiness to express, to seek gratification of, impulses, in overt action or in conscious feeling and attitude. It was designed to give additional test coverage in the general area of impulsiveness, irrepressibility, assertiveness and adventurousness. It also is a measure of what is common in students of whom it is often said that they need self-discipline or organization or integration. Maslow's scale for Dominance-Feeling (16, 17) was not broadly enough conceived for what we had in mind, and measures such as Delinquency, Depression and Mania appeared, both conceptually and from a study of their distributions, to be rather inappropriate for our subjects.

In constructing IE we chose from the 677 verbal items of the battery the 79 which seemed most clearly to express such tendencies as aggressiveness, rebelliousness, restlessness, excitability, unconventionality, flexibility, and so forth. Using several classes of seniors and freshmen, item analyses were then carried out, with the 79 items as an initial criterion, until a reliable test containing the 124 items appeared. In the final revision only 7 items were discarded and 8 added.

It was fairly easy to group the items into four clusters: Ascendance, Sensation, Endocathection and Intraception, and Radical Sentiments.

Likely reasons why IE does not correlate with the California F scale are that IE contains too much aggressiveness and too little positive social feeling (7, 26). The scale clearly has to do both with impulse expression which is spontaneous and free and with impulse expression which is defensive or 'driven.' In the assessment study of 50 alumnae previously referred to there was almost no tendency for staff members to 'prefer' (on the basis of a composite of 19 of their ratings) high scorers on IE to those with low scores.

In the current revision a few IE items have been altered slightly, in comparison with the previous scale (20), so that they will also be meaningful for male subjects. The meaning of IE scores for men, however, can only be determined by further research.

Dominance and Confidence (DC). After developing SM, DS and IE, we found a rather clear dimension remaining in the unused items. There were a fairly large number of unused items with no obvious psychopathological content, the indorsement of which constituted a rather definite avowal of confidence, impurturbability and leadership ability within groups or in other social situations. Three staff members independently marked those items which they believed would give the least ambiguous measure for this domain, and the 77 items on which there was unanimous agreement were used as a criterion test. The choice of items for this scale seemed rather easy, and the experiment was apparently successful, for after one item analysis, using a random sample of 225 freshmen, the reliability (KR 21) was .92.

We also wanted a test which would be reliable for seniors, however, so an additional item analysis using a random sample of 192 seniors was carried out, which resulted in a final scale of 92 items which had a reliability of about .90. An interesting finding emerged from a comparison of the item-test correlations for the two groups: the scale would have included, if only the freshman sample had been used, not only the final 92 items, but also an additional 23 items which expressed a denial or rejection of various psychopathological, or symptom-complaint, kinds of items. As it turned out, however, these items are omitted from the final scale because not enough high scoring seniors also rejected them. In other words it appeared that it was easier for seniors than for freshmen to score high on DC and at the same time admit difficulties or describe such symptoms as they might have. This difference between the classes was subsequently supported by a number of other studies (19).

DC has more 'face validity' than any other scale. This is all the more reason for questioning the meaning of high scores on it; for example, it is still uncertain to what degree high scores represent *over*-confidence. A study of the assessment sample of 50 alumnae, however, has given us reason to suppose that in their case the measured social dominance and confidence was genuine enough. Finally, DC turned out, in line with our expectations when we selected the criterion items, to be relatively independent of SM and IE (See Table 4).

Social Integration (*SI*). The number of studies of the suppression, or response set, or 'validity' factor in personality tests has increased in the last decade. *RS*, which is discussed in the next section, is a suppression type of measure, while *SI* is a more extreme or exaggerated form of *RS* (it correlates in the .80's with *RS*), similar in its derivation to the MMPI *F* scale (18). At the same time *SI* is a measure of the conventionality, or popularity, of the subjects' test responses, because it was constructed by refining a 'rare response' scale and then *reversing the scoring*.

Ⓣ The construction of *SI* is therefore such that it has, at least for moderately large samples of persons and items, a negatively skewed score distribution. In developing *SI*, independent samples of freshmen and seniors were used; and in selecting items for internal consistency we used only those with means in the range .06-.34, or in the range .66-.94 with reversed scoring. (The *possible* range for item means is of course 0-1). Since a test such as *SI* has item scoring which is dependent only upon the popularity of the item responses, this in turn means that any individual's score is directly dependent upon how the other subjects answered the items. There is no theory known to us which has concerned itself with the sampling distribution of such test scores, even though for increasing numbers of items and subjects the obtained score distributions become more symmetrical and appear to approach normality.

Some caution seems necessary, therefore, in interpreting the scores on *SI for individuals from samples which are quite different from those used in its standardization*. In fact we felt justified for a period of time in calling *SI* the 'Vassar Girl' scale, just because of its specificity and high salience for our own subjects; but for these very same reasons it may be relatively unreliable (when compared with other scales) for subjects at other institutions. For example, what would be the empirical meaning of a low score on *SI* for a Princeton student? It would mean that his test responses were not typical of those of Vassar students. Regardless of the face validity of the items, it seems hazardous at present to carry the interpretation much further without more research, including if possible an investigation of the stability of the sampling distribution for SI.

When we turn to the actual item content of SI it appears to provide very useful and rather consistent information concerning our subjects. A very low score can be obtained honestly by a subject who is aware that she is an unhappy social isolate, and that she is 'different,' or in a small minority of students in the College. For this reason SI appears to be closest of all scales in the Inventory to a measure of serious maladjustment, and low scores on it may in some cases be found to be good indicators of the presence of prepsychotic processes. On the other hand, just as for the MMPI F scale, a low score could also be obtained by a subject who was lying, or by a person who was trying to give an overly bad impression. For this reason it is also a 'validity' scale, the score on which should be examined before any other scores are analyzed. If the score is very low then the attitude of the subject in answering the items is certainly atypical, and the validity of his other scale scores may be questioned. For example, a person who answered items randomly, or without reading or understanding them, would be very likely to obtain a low score.

Repression and Suppression (RS). This is a long scale of high reliability based on rather extensive research. We have not been surprised to find that in its final form it contains many of the same items found in other scales which have been constructed for the purpose of measuring 'suppression factor,' as the latter is described by Meehl and Hathaway (18), and, in less detail, by Fordyce (15), Fricke (8) and others. Personality research owes a debt to the investigators who developed and experimented with the MMPI K scale, for extensive use of this scale has demonstrated beyond reasonable doubt the utility of correcting other scales for suppression effects.

Ⓣ We were led to the present RS scale from two entirely different theoretical approaches. We first made an experimental scale comprised of items without extreme means which were all scored 'true' to detect the tendency to use this response. The use of (dichotomous) items with means distributed in a narrow range about .50 is recommended for this purpose by Fricke (8). In the previous revision of the present Inventory, however, the mean item mean for composite large samples of freshmen and seniors was only .41 for 'true' responses. This low value was partially due to the rather large amount of item rejection occurring for our kinds of subjects with these particular kinds of items. When items with means less than .09 and greater than .91 were omitted, the mean item mean rose to .43, and our first selection of items for a response set scale used this as a 'center' instead of .50.

Ⓣ Now as one widens the confidence limits for item means about such a central constant, in order to select more items which theoretically are still sensitive to response set, the chance of rejecting an item for which the hypothesis that its population mean equals the constant is true rapidly becomes negligible. At the same time by increasing sample size moderately the limits may be widened considerably before the chance exceeds .01 of accepting an item when in fact such a hypothesis concerning it is false. This second kind of error would be the more important of the two for this kind of problem. But with a slightly modified theory of response set it, too, becomes relatively unimportant. For why should not items with extreme means also be sensitive to response set at least to some slight extent? In case some items with extreme means are in fact sensitive to response set, then the actual size of the confidence interval and the location of the central constant become less important. It seems likely that this is indeed the case, for we have found that regardless of the confidence interval employed, the total scores for the items selected to measure response set have extreme correlations with rare response scales, that is, with scales comprised only of items with small means (such as SI before its scoring was reversed). We have therefore been led to think that the general overall content, rather than any more formal characteristics of the items is mainly responsible in these kinds of tests for 'response set.'

Ⓣ The experimental scale constructed according to Fricke's theory was nevertheless useful, regardless of what determined the response set. It consisted of 105 items all scored 'true,' with means in the range .32-.54 ($\beta < .01$), for which the KR 21 reliability was .910. It correlated -.836 with SI, for a random sample of 512 freshmen and seniors. We were more surprised when it was discovered that it also correlated .912 with another scale which had been developed, we thought, for measuring something else!

Ⓣ This other scale (or a shortened version of it) which we had been calling 'Feminine Sensitivity,' is discussed in previous papers (19, 20, 23). It was comprised of 110 items with KR 21 reliability exceeding .90 in independent samples, and it was composed entirely of MF items or their correlates. To be sure there were more correlating items than original 'criterion test' MF items, but the content of the entire test seemed to us to represent fairly well our previous definition of Feminine Sensitivity, namely, 'Emotionality, fantasy, introspection, "neurotic trends," and esthetic interests' of the kind found in relatively large amounts in women whose femininity is expressed by a rich inner life, or by a large amount of intraception. This scale had been more useful than the average in our work, both in its short form as MF III (see below) and in its extended form, and it was initially with some uneasiness that we began to compare the latter with what had turned out to be its 'parallel form,' namely, Response Set.

Ⓣ It was easy to see why the correlation was as high as .912. In the first place over a third of the items in the two scales were common items. Secondly, both scales were saturated with 'acquiescence,' that is Feminine Sensitivity had only 18 items answered 'false.' Finally, and we believe most importantly, Response Set contained a large number of items, excluding those held in common with Feminine Sensitivity, which also appeared to measure emotionality, fantasy, etc., or precisely the traits which were of interest in the Feminine Sensitivity scale. We leave it to the reader to decide whether we should have then called Response Set 'Feminine Sensitivity,' or renamed Feminine Sensitivity 'Feminine Acquiescence,' or perhaps--more cynically--given up entirely the construction of personality tests for which there is no clearly defined 'external' criterion! Actually it seemed impractical to do any of these things, so instead we pooled the common items of the two scales to form a new initial scale, which was then used in successive item analyses, adding some new samples, to produce the RS scale of the present Inventory.

On the first item analysis, using the old sample, the item-test correlations rose appreciably over what had been obtained for either of the old scales, so we felt justified in continuing with the new approach. After further item analysis using new samples (N = 518 freshmen and seniors) it was found that the KR 21 reliability was .93 (measured in the old sample, N = 512) for a test of 157 items, all of which were scored in the same direction. The analysis was stopped here because it seemed unlikely that the reliability could fall below .90 for new samples of our subjects. (This was subsequently verified for two independent samples for which the KR 21 reliability was about .92.)

It was next decided to score *RS* in the 'false' direction, so that it would serve *as a measure of the tendency to reject, or to disagree with, the kinds of items which occur in the Inventory*. It seems to be a rather good analogue, for use with 'normal' college women, of the MMPI *K* scale. It is easy to see from some of the content of *RS* why a person intending to present a favorable appearance would be likely to obtain a high score on it, or, conversely, why a subject with overly dependent, or 'acquiescent,' needs might dramatize his complaints, or symptoms, or appearance, and so to obtain a low score. *RS* might equally well be called 'Response Set,' not merely because all its items are scored 'false,' but also because 'response set' implies a need to ignore content in order to be overly agreeable or disagreeable, which at the level of the (unconscious) ego defense mechanisms is not dissimilar to other kinds of concern with appearance for appearance's sake.

Finally, it was decided that since *RS* was to be used to correct other scales, it should not be weakened by removal of the 42 *SI* items which are present in it. The item-test correlations were higher for these items which were also present in *SI* than for the other items, and this partly accounts for the high correlation of .843 between *RS* and *SI*. The method for correcting the other scales for effects measured by *RS* has been described in a previous section. Whenever such corrected, or difference, scores are used, both components of the difference should be as reliable as possible; this is one reason for the excessive length of *RS*.

Masculine Role (*MF*). We have studied several kinds of masculinity (and femininity, its presumed opposite) using a number of masculinity-femininity tests of both the verbal and the nonverbal types. A few of the results are discussed elsewhere (19, 20). Masculine Role, or *MF*, is a traditional kind of masculinity-femininity scale, which is scored so that the high scores correspond to masculinity. Each of its items has been found in previous studies to discriminate men from women. Possibly because it has been constructed and scored for our samples of only one sex, *MF* is the least reliable of the *Inventory* scales. When both sexes are included in the samples, reliability may be expected to improve.

Included in the first revision of the experimental battery were the MMPI *Mf* scale, the CPI *Fe* scale (9), and about 80 MMPI items found by Drake (4) to give the best discrimination of the sexes in a large college sample. Also administered was an experimental adjective self-descriptive type of masculinity-femininity measure. Perhaps these kinds of tests should not be expected to have high reliability for samples of one sex; the highest reliability which we obtained with any of them alone was in the .50's. On the other hand, if an instrument is desired which effectively discriminates 'feminine' from 'masculine' subjects *among members of one sex*, then high reliability is essential. In a previous paper on this topic (21), the problem of reliability was ignored.

Ⓣ Since the self-descriptive test mentioned above turned out to have correlations too low to be retained profitably in the matrix, *MF* was originally a first principal component test made up of the best items from the other three scales. Its reliability was subsequently increased somewhat (.61 to .69) for one sample by discarding some items; it might have been further improved, for our samples of women, by applying other methods which were not known to us at the time (12, 24).

Since reliability around .70 for a test with 96 items seemed too low, we assigned the items of *MF*, on rational considerations, to three clusters which can be described (when scored in the masculine direction) as follows:

MF I (18 items): Preference for conventionally masculine roles and interests.

MF II (45 items, 3 omitted later): Aggressiveness, dominance, manipulativeness; lack of docility, of modesty of moral sensitivity.

MF III (33 items): Lack of emotionality, of fantasy, of introspection, absence of 'neurotic trends' and of esthetic interests.

After item analysis of each of these subtests, 3 items were dropped from *MF II*, and reliabilities were .43, .69 and .70, respectively, which, considering their length, was some improvement over *MF*. This analysis reveals some of the diversity of the content of the *MF* items, which may possess homogeneity, limited as it is (for one sex), more because of relatively superficial cultural influence or tradition than for any profound reasons. Hence the name 'Masculine Role' for *MF*. Items of the three subtests are identified on page 8. *MF III* has already been discussed, in a different context, in the section describing the construction of *RS*.

It was found, using samples of freshmen and the small sample of 50 alumnae, that *IE* correlated in the +.60's with *MF II*, but around -.40 with *MF III*. *IE* therefore appears to be related in a more complex way to the items of *MF* than is apparent from its correlation of .249 in Table 4. It is hoped that other investigators will find future research with *MF* of interest.

Complex Preference (*CP*). This is a particular kind of factor test, the first of the two scales from the *VC Figure Preference Test--Form C* appearing on the Profile Sheet. The figure preference test is the third revision of a nonverbal 'symbol' test, and since it is constructed with the use of a new kind of test design, it will be necessary to discuss it at some length before considering the *CP* scale itself.

The *VC Figure Preference Test* was constructed in order to obtain reliable measures of preferences, in the form of expressed 'likes' or 'dislikes,' for various kinds of abstract figures, or designs. The characteristics of such figures have long been important in certain psychological theories; for example, psychoanalytic theory distinguishes male and female symbols, which can be represented by certain kinds of drawings. The 'sex' of a design, or drawing, can indeed be shown to be one of the determinants of the expressed preferences for it, although it is likely to be a rather weak one in comparison with some of the other characteristics.

From previous experimentation (3, 6, 19) some of which has been carried out on the present project over the last four years, the most important determinants of preferences for black and white figure drawings are known to be general esthetic appeal, concreteness or abstractness, simplicity or complexity, passivity or activity, and sex symbol characteristics. The first two of these determinants, if not controlled by test design, would account for an appreciable amount of the variation in preferences. In the *VC Figure Preference Test*, general esthetic appeal is partially controlled by including in each row of figures a group of four which, if presented singly, are about equally liked (or disliked) by subjects; this has the effect of requiring a forced-choice design (subjects are required to indicate which two of the four figures in each row they 'like best') and also of making some rows of figures more attractive than others for average subjects. In the previous edition of the test (Form B), the concreteness or abstractness of the figures varied considerably, but in the present revision variations in this dimension have been reduced as much as possible without interfering with other requirements.

Recognition of the relatively great importance of the third characteristic, the simplicity or complexity of figures, is largely due to Barron (3). The apparent activity or passivity of figures is a determinant which was added mainly because it was found that high scorers on *IE* tended to prefer figures with activity in them, regardless of any other features which happened to be present; this is still being investigated. As might be supposed, the activity of a figure is not in general independent of its complexity; for example, preferences for these two characteristics can be shown with the present test to correlate in the +.60's for our subjects.

Ⓣ The design of the *VC Figure Preference Test--Form C* parallels the experimental design which is known as the 2^3 factorial with complete confounding of the 3-factor interaction; it is in fact such a design with complete nonorthogonality (because subjects each receive all 'treatments,' which makes analysis of 'yields' by methods used with the classical design impossible). The three 'main effects,' each of which appears at two levels in the various figures, are

Simplicity (S) - Complexity (C)
Passivity (P) - Activity (A)
Femininity (F) - Masculinity (M)

For example, using the abbreviations given above, the two blocks comprising the first replication in the test are the eight figures,

SPM CAM SAF CPF
SPF CAF SAM CPM .

The first figure is 'simple, passive and masculine,' the second 'complex, active and masculine,' etc.

Ⓣ These two kinds of rows, or blocks, are the only ones possible for three main effects, when the second-order interaction is confounded with differences between blocks, but there are 24 possible different orders of presentation of the figures within each block. The test therefore contains 24 replications after the initial one abbreviated above, which appear randomly in all possible presentations of four figures. Alternation of the two kinds of blocks is preserved.

Ⓣ The eight 'simple effects' are of course the eight kinds of figures comprising the two blocks; there are 25 of each kind of figure, or 200 figures in the entire test. Correlation studies showed that in most cases the theoretical distinctions between the different drawings of the present test held up very well. In fact, the KR 21 reliabilities (N = 200, 50 randomly selected from each class) of these eight kinds of simple effects, or subtests, unimproved by any empirical analysis, are, in the order given by the two rows of abbreviations above, .90, .91, .66, .78, .94, .88, .78 and .83. Nonverbal items are in general more difficult to form into scales than are verbal items, and these reliabilities, for only 25 items each, are high in comparison with what they ordinarily are without the factorial forced-choice design.

Ⓣ It seems worthwhile demonstrating, because of the possible general utility of this test design, that these values really are the KR 21 reliabilities of the simple effects. The instructions require the subject to choose the two figures he 'likes best' out of each row of four. There are six ways of choosing a unique pair from a block of four figures, and three of these ways would include in this unique pair a particular subtest figure, such as SPM, say, while the remaining three ways would exclude it. We may therefore score a given subtest +1 each time one of its figures is preferred, 0 each time it is not included in the choice of the pair. (This is also consistent with the theory of the design which scores the two 'levels' of each of the 200 figures 0 or +1 for each of its three main effects.) Since items for a particular subtest appear only once in alternating blocks, and there are 50 blocks altogether, the possible score range for a subtest is 0-25. The reliability of a subtest $\underline{X}$ may therefore correctly be estimated by the Kuder and Richardson (14) formula 21 as

$$\text{KR } 21 = \frac{25}{24}\left[1 - \frac{25\bar{X} - \bar{X}^2}{25S_X^2}\right] ,$$

where $\underline{S_X^2}$ is the variance of the subtest. Of course, this variance is likely to be large partly because of the forced-choice design; the latter is also important, therefore, along with the factorial nature of the design, for achieving high reliability.

Ⓣ The scoring of the three main effects and their interactions is also quite simple. In fact, instead of scoring them directly, they may also be obtained (as in other factorial experiments) by adding combinations of the simple effect (subtest) scores, in the present case as follows:

Simplicity-Complexity (SC) = CPF + CAM + CAF + CPM
Passivity-Activity (PA) = SAF + CAM + SAM + CAF
Femininity-Masculinity (FM) = SPM + CAM + SAM + CPM
(SC) x (PA) = SPM + CAM + SPF + CAF
(SC) x (FM) = SAF + CAM + SPF + CPM
(PA) x (FM) = CPF + CAM + SPF + SAM
(SC) x (PA) x (FM) = SPF + SAM + CAF + CPM = 50

Ⓣ The last interaction and the eighth factorial effect, which is the 'grand mean' (here 100), are constants which are of no interest except for checking whether subjects have followed instructions and whether the scoring has been correct. It can be shown that the reliability of each of the six variable factorial effects above is based upon 100 independently scored items, and is estimable for an effect, say F, as

$$\text{KR 21} = \frac{100}{99}\left[1 - \frac{100\bar{F} - \bar{F}^2}{100S_F^2}\right] .$$

This somewhat detailed discussion of the design of *VC Figure Preference Test* has been given for two reasons. First, readers may wish to relate scores on the eight experimental subtests to other personality measures, and, if this is the case, the scoring may be obtained from Table 16; this table gives the set of 'labels,' or abbreviations, arranged by pages for the 200 items comprising the entire test.

Ⓣ Second, the design itself is likely to be useful in other situations where mental tests are required. For example, k main effects could as well be k sets of correlations, each occurring at p levels, of a kind of test response with k different external criterion variables. It should be added that when such test scores as those obtained in the form of these factorial effects (simple or main) are altered according to the results of internal consistency analyses, their reliabilities increase above what are already likely to be relatively high values.

Ⓣ We can now discuss the construction of the *CP* scale. The KR 21 reliabilities (N = 200, random sample, 50 from each class) of the three main effects were

Simplicity-Complexity (SC)	...	.91
Passivity-Activity (PA)	...	.82
Femininity-Masculinity (FM)	...	.60

and their intercorrelations were

(SC)x(PA) . . . .65, (SC)x(FM) . . . .12, (PA)x(FM) . . . .39.

The first principal component of the correlation matrix made up of the above values accounts for about 62% of the variance and has loadings for the three effects of .82, .92 and .56, respectively. Factor scores based on these weights were computed for each subject, and the 200 items in the test correlated with this factor score by a simple method (23). CP is the resulting test; it has 'factor validity' of .975 and contains 141 items, most of which had item-factor correlations in the .40's and .50's. If an item had sufficient positive correlation with the factor to be included in the test and is preferred by the subject, its score is +1, while if it had sufficient negative correlation with the factor and is not preferred, its score is also +1; otherwise the item is scored zero (see page 10). When KR 21 was computed for CP as if the 141 items had been scored independently, it was found to be .973; but this value is inflated because now the item scoring within rows of test figures is in fact no longer based upon independent preferences. The actual reliability appears to be about .94, but it seems difficult to obtain a good estimate which will allow for the effects of forcing the responses when the empirically derived scoring varies so much from block to block. CP is not the only kind of first factor test which could have been constructed, and it is hoped that further work will reveal its merits and demerits. It will be interesting to see if analyses using other factorial effects than these three can provide the essential information in a more convenient form.

It seems likely from a study of the correlation matrix discussed above, as well as from the factor loadings, that our subjects' figure preferences are determined largely by a certain 'mixture' of Complexity, Activity and (to a smaller extent) Masculinity of the figures. The importance of this combination for our subjects is of course also indicated by the fact that CP has an unusually high variance, even for such a long test (see Table 12).

Some correlates of verbal items from the battery with CP have been examined. From the content of these items it is clear that low scorers on CP, when compared with high scorers, are more compulsive, more inhibited and generally more controlled or disciplined; at the same time they say they do not care for modern art, and they indicate a dislike for ambiguous situations in which simple logical attitudes are either irrelevant or else dominated by emotional complexities. Because of its general importance in personality theory, and especially for projective testing, it appears that more research on the meaning of symbol preferences would be desirable.

Masculine Preference (MP). This is also a factor test which was constructed from VC Figure Preference Test responses, but by a more economical method than that used for the construction of CP. It is orthogonal to CP, the obtained correlation with CP being .005 (N = 200, random sample).

Ⓣ The second principal component of the matrix discussed in the preceding section had loadings, -.48, -.07 and .81 and accounted for about 30% of the variation; the factor could therefore be called preference for 'simple-masculine' versus 'complex-feminine' figures. Instead of weighting standard scores and assigning resulting factor scores, a fairly lengthy task, the main-effect test, Femininity-Masculinity, was first refined by internal consistency item analysis. It was then found to have reliability in the high .80's and to correlate .75 with CP. Next the method of orthogonalization previously described (p.11) was applied to this refined main-effect test to make a new set of scores uncorrelated with CP, and another item analysis was carried out to select the items correlating with these adjusted scores. The resulting test MP therefore measures a preference for male rather than female symbols, and, since its correlation with CP is effectively zero, it does this nearly independently of the first principal component of the test.

Correlates of MP are being studied, and more can be reported later. The correlations of VC Attitude Inventory items with MP, however, for a random sample of 329 freshmen, deserve some discussion. High-scorers on MP, when compared with low scorers, indorse many verbal items which indicate that they possess an active and highly emotionalized fantasy life. For example, they indicate that they have many dreams, 'strange and peculiar thoughts,' and some concern about sex; and they indorse items expressing moodiness, restlessness, excitability, distractibility, and the like. In addition, they reveal that they have masochistic feelings about men. In all these respects high-scorers on MP are much like high-scorers on IE. There is an important difference, however, in that the former express more feelings of inadequacy, inhibition, social reserve or isolation, and passivity than do the latter; this is all the more interesting because it is accompanied by strong needs to be exhibitionistic. High-scorers on MP are similar to high-scorers on IE, but they appear to be more immobilized or frustrated. For example, MP high-scorers emphasize that it is hard for them to 'get going,' to make up their minds, to be at ease in social groups, to assume leadership, and so on. They might appear at first to be traditionally feminine (see the MF subscales, p.8), but this traditionalism is attenuated both by unconventional attitudes, for example, feelings of rebelliousness directed toward established social customs and institutions, and by a certain autonomy or independence, for example, a dislike for, or a distrust of, the dependence entailed in sharing confidences or in asking others for help.

MP is comprised of 74 items and has reliability near .85. Its variance is sufficiently large to order our subjects on 'preference for male rather than female symbols,' largely independently of other characteristics of the figures.

Tables of Standard Scores, Norms, Reliabilities, Etc.

On the following pages will be found tables containing statistics from various samples for the nine scales. Scale names are abbreviated as follows:

Social Maturity	SM
Developmental Status	DS
Impulse Expression	IE
Dominance and Confidence	DC
Social Integration	SI
Repression and Suppression	RS
Masculine Role	MF
Complex Preference	CP
Masculine Preference	MP

Table 1

Standard Scores ($\bar{X}$ = 50, s = 10) for the Nine Scales Corresponding to Profile Sheet A (N = 906)

Raw Score	SN	DS	IE	DC	SI	PS	MF	CP	MP
155						78.74			
150	85.96					76.47			
145	83.00					74.21		77.04	
140	80.05					71.95		75.47	
135	77.09					69.68		73.90	
130	74.13					67.42		72.33	
125	71.17		99.38			65.15		70.76	
120	68.21		96.26			62.89		69.19	
115	65.25		93.14			60.63		67.62	
110	62.30		90.02			58.36		66.05	
105	59.34		86.90			56.10		64.48	
100	56.38		83.78		65.84	53.83	138.54	62.91	
95	53.42		80.66	82.04	62.17	51.57	131.44	61.34	
90	50.46		77.54	78.07	58.51	49.31	124.34	59.77	
85	47.50		74.42	74.09	54.84	47.04	117.24	58.20	
80	44.55		71.30	70.11	51.17	44.78	110.14	56.63	
75	41.59	88.97	68.18	66.13	47.50	42.51	103.04	55.06	83.31
70	38.63	84.71	65.06	62.16	43.83	40.25	95.94	53.49	79.19
65	35.67	80.45	61.94	58.18	40.17	37.99	88.84	51.92	75.06
60	32.71	76.19	58.82	54.20	36.50	35.72	81.74	50.35	70.94
55	29.76	71.93	55.70	50.22	32.83	33.46	74.63	48.78	66.81
50	26.80	67.67	52.58	46.24	29.16	31.19	67.53	47.21	62.69
45	23.84	63.41	49.46	42.27	25.49	28.93	60.43	45.64	58.56
40	20.88	59.15	46.34	38.29	21.83	26.67	53.33	44.07	54.44
35	17.92	54.90	43.22	34.31	18.16	24.40	46.23	42.50	50.31
30	14.96	50.64	40.10	30.33	14.49	22.14	39.13	40.93	46.19
25	12.01	46.38	36.98	26.36	10.82	19.87	32.03	39.36	42.06
20	9.05	42.12	33.86	22.38	7.15	17.61	24.93	37.79	37.94
15	6.09	37.86	30.74	18.40	3.49	15.35	17.83	36.22	33.81
10	3.13	33.60	27.62	14.42	-0.18	13.08	10.72	34.65	29.69
5	0.17	29.34	24.49	10.45	-3.85	10.82	3.62	33.08	25.56
0	-2.79	25.08	21.37	6.47	-7.52	8.55	-3.48	31.51	21.44

* *

Table 2

Standard Scores ($\bar{X} = 50$, $s = 10$) for the Nine Scales
Corresponding to Profile Sheet B ($N = 906$)

Raw Score	SM	DS	IE	DC	SI	RS	MF	CP	MP
200			102.17						
195			98.94						
190			95.71						
185			92.49						
180			89.26						
175			86.03						
170			82.81						
165			79.58						
160			76.36						
155		103.54	73.13			78.74			
150		100.01	69.90			76.47			
145		96.49	66.68			74.21		77.04	
140		92.96	63.45			71.95		75.47	
135	103.18	89.43	60.23			69.68		73.90	
130	100.13	85.90	57.00			67.42		72.33	
125	97.08	82.37	53.77			65.15		70.76	
120	94.03	78.84	50.55			62.89		69.19	
115	90.98	75.31	47.32			60.63		67.62	
110	87.93	71.78	44.10			58.36		66.05	
105	84.88	68.26	40.87			56.10		64.48	
100	81.82	64.73	37.64			53.83		62.91	
95	78.77	61.20	34.42			51.57		61.34	
90	75.72	57.67	31.19			49.31		59.77	
85	72.67	54.14	27.97			47.04		58.20	
80	69.62	50.61	24.74			44.78		56.63	
75	66.57	47.08	21.51			42.51		55.06	83.31
70	63.52	43.56	18.29			40.25		53.49	79.19
65	60.47	40.03	15.06	104.41		37.99		51.92	75.06
60	57.42	36.50	11.84	101.55	103.63	35.72	105.96	50.35	70.94
55	54.37	32.97	8.61	98.69	101.16	33.46	101.39	48.78	66.81
50	51.32	29.44	5.38	95.83	98.69	31.19	96.82	47.21	62.69
45	48.26	25.91	2.16	92.97	96.22	28.93	92.24	45.64	58.56
40	45.21	22.38	-1.06	90.11	93.74	26.67	87.67	44.07	54.44
35	42.16	18.86	-4.29	87.24	91.27	24.40	83.10	42.50	50.31
30	39.11	15.33		84.38	88.80	22.14	78.52	40.93	46.19
25	36.06	11.80		81.52	86.32	19.87	73.95	39.36	42.06
20	33.01	8.27		78.66	83.85	17.61	69.38	37.79	37.94
15	29.96	4.74		75.80	81.38	15.35	64.81	36.22	33.81
10	26.91	1.21		72.94	78.90	13.08	60.23	34.65	29.69
5	23.86	-2.32		70.08	76.43	10.82	55.66	33.08	25.56
0	20.81			67.22	73.96	8.55	51.09	31.51	21.44

Table 2 (continued)

Raw Score	SM	DS	IE	DC	SI	RS	MF	CP	MP
- 5	17.76			64.36	71.48		46.51		
- 10	14.70			61.49	69.01		41.94		
- 15	11.65			58.63	66.54		37.37		
- 20	8.60			55.77	64.06		32.79		
- 25	5.55			52.91	61.59		28.22		
- 30	2.50			50.05	59.12		23.65		
- 35	-0.55			47.19	56.64		19.08		
- 40	-3.60			44.33	54.17		14.50		
- 45				41.47	51.70		9.93		
- 50				38.61	49.22		5.36		
- 55				35.75	46.75		0.78		
- 60				32.88	44.28		-3.79		
- 65				30.02	41.80				
- 70				27.16	39.33				
- 75				24.30	36.86				
- 80				21.44	34.39				
- 85				18.58	31.91				
- 90				15.72	29.44				
- 95				12.86	26.97				
-100				10.00	24.49				
-105				7.13	22.02				
-110				4.27	19.55				
-115				1.41	17.07				
-120				-1.45	14.60				
-125				-4.31	12.13				
-130					9.65				
-135					7.18				
-140					4.71				
-145					2.23				
-150					-0.24				
-155					-2.71				

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Table 3

Numbers of Items (Main Diagonal) and Common Items (Non-diagonal Elements) in the Seven VC Attitude Inventory Scales.

		Common Items Scored in the Same Direction						
		SM	DS	IE	DC	SI	RS	MF
Common Items Scored in the Opposite Direction	SM	149	31	22	14	14	32	10
	DS	1	72	30	2	-	3	6
	IE	5	-	124	8	-	-	13
	DC	-	-	2	92	26	32	11
	SI	2	11	26	-	99	42	4
	RS	2	14	48	5	-	157	22
	MF	6	1	5	1	4	12	96

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Table 4

Scale Intercorrelations* for the Seven VC Attitude Inventory Scales (Random Sample of 256 Freshmen plus 256 Seniors).

	SM	DS	IE	DC	SI	RS	MF
SM	-	637	205	363	215	440	330
DS	637	-	567	006	-433	-247	349
IE	205	567	-	088	-482	-518	249
DC	363	006	088	-	593	541	307
SI	215	-433	-482	593	-	843	012
RS	440	-247	-518	541	843	-	177
MF	330	349	249	307	012	177	-

*Decimal points are omitted.

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Table 5

Norms for the Social Maturity (SM) Scale (n = 149 items).

Sample	N	$\bar{x}$	s	r^{*}_{TT}
Vassar College Freshmen	321	82.128	15.154	.845
Vassar College Seniors	197	92.990	15.010	.850
Vassar College Alumnae Class of 1904	82	71.585	16.627	.871
Vassar College Alumnae Classes 1930-1935	50	92.900	12.489	.781
Beirut College Freshmen	28	55.000	14.924	.850
Beirut College Seniors	33	62.758	12.497	.773

*Unless otherwise indicated, reliabilities reported in this Manual are computed by Kuder and Richardson's (14) formula 21.

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Table 6

Norms for the Developmental Status (DS) Scale (n = 72 items).

Sample	N	$\bar{X}$	s	r_{TT}
Vassar College Freshmen	321	23.567	9.229	.825
Vassar College Seniors	197	34.700	11.010	.864
Vassar College Alumnae Class of 1904	82	17.780	7.295	.759
Vassar College Alumnae Classes 1930-1935	50	31.060	8.675	.776
Beirut College Freshmen	28	24.929	5.769	.518
Beirut College Seniors	33	25.667	5.988	.547

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Table 7

Norms for the Impulse Expression (IE) Scale (n = 124 items*).

Sample	N	$\bar{X}$	s	r_{TT}
Vassar College Freshmen	321	44.125	15.574	.890
Vassar College Seniors	197	51.855	16.789	.900
Vassar College Alumnae Class of 1904	82	26.740	12.016	.862
Vassar College Alumnae Classes 1930-1935	50	39.277	13.065	.850
Beirut College Freshmen	28	58.003	14.069	.851
Beirut College Seniors	33	48.268	12.041	.803

*Test scores were for only 123 items, but were adjusted for 124 items under the assumption that a score for a single parallel item could be added to total scores.

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Table 8

Norms for the Dominance and Confidence (DC) Scale (n = 92 items).

Sample	N	$\bar{x}$	s	r_{TT}
Vassar College Freshmen	321	53.863	13.060	.879
Vassar College Seniors	197	54.700	13.106	.880
Vassar College Alumnae Class of 1904	82	50.707	12.922	.873
Vassar College Alumnae Classes 1930-1935	50	49.460	9.366	.747
Beirut College Freshmen	28	49.286	11.566	.838
Beirut College Seniors	33	51.909	13.890	.892

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Table 9

Norms for the Social Integration (SI) Scale (n = 99 items).

Sample	N	$\bar{x}$	s	r_{TT}
Vassar College Freshmen	321	78.084	14.385	.930
Vassar College Seniors	197	76.959	13.737	.929
Vassar College Alumnae Class of 1904	82	79.488	12.336	.906
Vassar College Alumnae Classes 1930-1935	50	81.780	8.787	.824
Beirut College Freshmen	28	53.286	16.632	.920
Beirut College Seniors	33	64.909	14.876	.908

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Table 10

Norms for the Repression and Suppression (RS) Scale (n = 157 items)

Sample	N	$\bar{x}$	s	r_{TT}
Vassar College Freshmen	321	90.402	22.674	.931
Vassar College Seniors	197	90.624	20.851	.918
Vassar College Alumnae Class of 1904	82	100.902	21.322	.927
Vassar College Alumnae Classes 1930-1935	50	100.420	17.782	.891
Beirut College Freshmen	28	62.857	22.848	.934
Beirut College Seniors	33	75.061	19.125	.899

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Table 11

Norms for the Masculine Role (MF) Scale (n = 96 items).

Sample	N	$\bar{x}$	s	r_{TT}
Vassar College Freshmen	321	37.094	6.871	.523
Vassar College Seniors	197	39.325	7.090	.544
Vassar College Alumnae Class of 1904	82	33.524	6.993	.560
Vassar College Alumnae Classes 1930-1935	50	38.520	6.561	.469
Beirut College Freshmen	28	40.750	6.390	.430
Beirut College Seniors	33	39.818	6.147	.387

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Table 12

Norms for the Complex Preference (CP) Scale (n = 141 items)

Sample	N	$\bar{x}$	s	r_{II}
Random Sample Vassar College Students, 50 from each class	200	58.885	31.852	~.94
Vassar College Freshmen	329	66.301	31.680	~.93

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Table 13

Norms for the Masculine Preference (MP) Scale (n = 74 items).

Sample	N	$\bar{x}$	s	r_{II}
Random Sample Vassar College Students, 50 from each class	200	34.620	12.122	~.85
Vassar College Freshmen	329	34.605	10.061	~.80

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Table 14

Norms Used in Constructing the Profile Sheets for the Nine Scales (Random Samples of 453 Freshmen plus 453 Seniors at Vassar College)

Scale	No. of Items	$\bar{X}$	s	r_{TT}
SM	149	89.217	16.902	.881
DS	72	29.254	11.738	.886
IE	124	45.869	16.024	.895
DC	92	54.721	12.570	.869
SI	99	78.405	13.631	.922
RS	157	91.532	22.084	.928
MF	96	37.655	7.041	.544
CP*	141	58.885	31.852	$\sim$.940
MP*	74	34.620	12.122	$\sim$.850

*Random Sample, N = 200 Vassar College students, 50 from each class.

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Table 15

Norms of Six Verbal Scales after Correction for Repression and Suppression (RS). (Random Samples of 453 Freshmen plus 453 Seniors at Vassar College).

Adjusted Scale L	$\bar{L}$	s_L	r^*_{LL}	$r_{(RS)T}$	$b_{(RS)T}$
SM	47.844	16.389	.850	.346	.452
DS	79.132	14.170	.862	-.290	-.545
IE	119.150	15.499	.788	-.581	-.801
DC	-30.088	17.476	.781	.527	.927
SI	-48.432	20.217	.608	.855	1.386
MF	- 1.188	10.934	.560	.135	.424

*Reliability estimated by: $$r_{LL} = \frac{r_{TT} + b^2 r_{(RS)(RS)} - 2br_{T(RS)}}{(1 + b^2) - 2br_{T(RS)}}$$

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Table 16

Identification* of the Theoretical Kinds of Items on the Pages of VC Figure Preference Test

Page 1

SPM	CAM	SAF	CPF
SPF	CAF	SAM	CPM
SAF	SPM	CAM	CPF
CPM	SAM	CAF	SPF
CAM	SAF	CPF	SPM

Page 2

SAM	CPM	CAF	SPF
CAM	SPM	CPF	SAF
CPM	CAF	SPF	SAM
CPF	SAF	SPM	CAM
SPF	SAM	CPM	CAF

Page 3

SPM	CPF	CAM	SAF
CAF	CPM	SPF	SAM
SAF	CAM	CPF	SPM
SPF	CAF	CPM	SAM
SAF	SPM	CPF	CAM

Page 4

CAF	SAM	CPM	SPF
CAM	CPF	SAF	SPM
SPF	SAM	CAF	CPM
SAF	CPF	CAM	SPM
CPM	CAF	SAM	SPF

Page 5

SPM	SAF	CPF	CAM
SAM	SPF	CAF	CPM
SPM	CPF	SAF	CAM
SPF	CPM	CAF	SAM
SPM	CAM	SAF	CPF

Page 6

CAF	CPM	SAM	SPF
SAF	CAM	SPM	CPF
SPF	CAF	SAM	CPM
CPF	SPM	CAM	SAF
CPM	SPF	CAF	SAM

Page 7

CPF	CAM	SAF	SPM
CAF	SAM	SPF	CPM
SPM	SAF	CAM	CPF
SAM	SPF	CPM	CAF
SPM	CAM	CPF	SAF

Page 8

SPF	CPM	CAF	SAM
SAF	CPF	SPM	CAM
CPM	SPF	SAM	CAF
CAM	SPM	SAF	CPF
CAF	SPF	CPM	SAM

Page 9

CPF	SPM	SAF	CAM
SAM	CAF	CPM	SPF
CPF	CAM	SPM	SAF
CAF	SPF	SAM	CPM
CAM	CPF	SPM	SAF

Page 10

SAM	CAF	SPF	CPM
CAM	SAF	SPM	CPF
SAM	CPM	SPF	CAF
CPF	SAF	CAM	SPM
CPM	SAM	SPF	CAF

*S = S[illegible]

P = Passive

F = Feminine

C = Complex

A = Active

M = Masculine

* * *

Use of the Profile Sheets A and B

For each subject, the seven verbal raw scores from the *VC Attitude Inventory* scales and the two nonverbal raw scores from the *VC Figure Preference Test* may be plotted on Profile Sheet A. The procedure before plotting is to record the obtained scores in the appropriate blanks, labeled 'Raw Scores,' at the bottom of Profile Sheet A. This facilitates locating the points on the corresponding vertical scales prior to joining them to obtain the graph. The bounding vertical reference scales, labeled 'Standard Scores,' on both Profile Sheets A and B have means of 50 and standard deviations of 10. Both Profile Sheets are based on data from a random sample of 906 Vassar College women, 453 freshmen and 453 seniors (see Tables 1, 2, 14, 15). This should be taken into account in interpreting profiles for subjects from other populations.

It will not be possible to plot some men's *MF* scores, for they will be too large to fit on the graph for that scale. This particular difficulty is not likely to arise in using other scales.

When it is desired to plot obtained scores *after they have been adjusted for the effects of Repression and Suppression* (*RS*), Profile Sheet B must be used. The obtained raw scores are entered as before in the first line at the bottom of Profile Sheet B. (Raw scores already recorded on Profile Sheet A may easily be transferred to the appropriate spaces on side B by folding down the top of the sheet). In using side B it is necessary next to enter in the line, 'Fractions of *RS*,' the values corresponding to the six raw scores which are to be adjusted for *RS*. These values may be obtained from the table on the right. The final scores which are plotted on side B are obtained in the row, 'Adjusted Raw Scores,' by algebraic addition of the values above each blank. *Note that in some cases the Adjusted Raw Scores will be negative numbers*. For example, the score for DC might be 32, the RS score 90. The adjusted raw score is therefore 32 - .93(90) = 32 - 84 = -52; the value of .93(90), or 84, is obtained directly from the table. In each case the operation is algebraic addition, in accordance with the sign already attached to the blank in the row, 'Fractions of RS.'

Finally, three of the scales which are not corrected for RS, namely, RS, CP and MP, are exactly the same on both Profile Sheets.

Validation Studies

Some descriptive findings concerning high and low scorers on the scales of VC Attitude Inventory will be presented in this section. (Some preliminary results concerning VC Figure Preference Test appear on pages 33-35). Correlations between interview ratings and test scores of students and alumnae will be reported in a later edition of this Manual.

Two kinds of results appear below. The first consists of descriptions by subjects, using a list of 100 of the LaForge-Suczek adjectives (15), of 'Self,' 'Ideal Woman,' 'Average Woman' and 'Ideal Man.' Each adjective was marked 'true' or 'false' by each subject to indicate whether or not she thought it described herself, the ideal woman, and so forth. A random sample consisting of 136 seniors plus 136 freshmen was used. A relatively efficient method of correlating the adjectives with the scale scores was employed (23).

The second kind of data appearing below are adjectives checked significantly often by assessment staff members to describe each of the 50 alumnae assessment subjects. Adjectives were checked independently by 5 assessment staff members who had no knowledge of subjects' test scores (in fact, the scales had not yet been constructed from the items of the battery), and the subsequent correlation of scale scores with adjectives therefore constitutes evidence of validity which is based upon an external criterion.

Although it was usually the case that many more correlations of adjectives with scales appeared than could reasonably be expected by chance, in no instance will more than 15 adjectives be listed. In all cases the adjectives found to be related most strongly to the scale will be given, and in the order of decreasing strength.

Descriptions of Assessment Subjects (N = 50 Alumnae) by Staff Members

Social Maturity (SM)

High scorers: graceful, attractive, well-groomed, gracious, intelligent, sophisticated, kind, understanding, interests wide.

Low scorers: awkward, immature, tense, cautious, inhibited, rigid.

Developmental Status (DS)

High scorers: complex, individualistic, angular, not easily impressed, quick (mental), interesting, sophisticated, civilized, frank, rebellious, erratic, sharp-witted, not afraid to complain, imaginative, thin.

Low scorers: conforming, conventional, conservative, plays it safe, cautious, dutiful, mild, meek.

Impulse Expression (IE)

High scorers: big-boned, impulsive, irrepressible, angular, loud, tall, full of pep, erratic, vigorous, restless, impatient, stylish, uninhibited, excitable, outgoing.

Low scorers: retiring, silent, reliable, inhibited, reserved, stolid, humorless, shy, withdrawn, plain, faint-voiced, meek, painstaking, quiet, weary.

Dominance and Confidence (DC)

High scorers: out-going, self-confident, sociable, self-satisfied, healthy, good carriage, vivacious, good leader, pleasure-seeking, optimistic, dominant, good-looking, polished, poised, smug.

Low scorers: unassuming, detached, frequently disappointed, lacks self-confidence, reflective, tense, inhibited, intropunitive, high-strung, tense-looking, mild, modest, thin-faced, fearful, self-punishing.

Social Integration (SI)

High scorers: carefully groomed, deliberate, self-centered, physically fit, cool, good leader, gracious, feminine, well proportioned, self-possessed, dignified, self-satisfied, conforming, reliable.

Low scorers: awkward, big-boned, asking for help, high-strung, moody, blunt, erratic, homely, practical, resentful, emotional, discontented, anxious, frequently disappointed, lacks self-confidence.

Repression and Suppression (RS)

High scorers: praising, attractive, good carriage, physically fit, natural, trim, fresh appearance, good looking, polished.

Low scorers: nervous, depressed, submissive.

Masculine Role (MF)

High scorers: adventurous, good carriage, independent, assertive, good leader, individualistic, self-reliant and assertive, sophisticated, tom-boyish, hard boiled when necessary, aggressive, forthright and critical, forceful, masculine, poised.

Low scorers: affectionate, nervous, anxious, feminine, appreciative, sympathetic.

Descriptions of 'Self,' 'Ideal Woman,' 'Average Woman' and 'Ideal Man'*
(Random Sample of 136 Freshmen plus 136 Seniors, .01 Level of Significance.)

Social Maturity (SM)

Self: Plays it safe (F), wants everyone's love (F), businesslike (F), enthusiastic follower (F), obedient (F), stern but fair (F), suspicious (F), can't refuse to cooperate (F), modest (F), apologetic (F), guiding (F), always smiling and pleasant (F), sometimes disrespectful (T), too lenient with others (F).

Ideal Woman: likes everybody (F), fond of everyone (F), always smiling and pleasant (F), plays it safe (F), can't refuse to cooperate (F), wants everyone's love (F), businesslike (F), apologetic (F).

Average Woman: straightforward and direct (F), stern but fair (F), shrewd and practical (F), guiding (F), forthright and critical (F), sometimes disrespectful (T), good leader (F), self-confident (F), always smiling and pleasant (F), unselfish (F).

Ideal Man: Always smiling and pleasant (F), plays it safe (F), likes everybody (F), fond of everyone (F), obedient (F), self-punishing (F), uncritical of others (F), can't refuse to cooperate (F), outspoken (T), critical of others (T).

Developmental Status (DS)

Self: sometimes disrespectful (T), obedient (F), likes everybody (F), can't refuse to cooperate (F), always smiling and pleasant (F), fond of everyone (F), plays it safe (F), skeptical (T), enthusiastic follower (F), wants to be led (F), businesslike (F), modest (F), good leader (F), stern but fair (F), occasionally jealous (T).

Ideal Woman: likes everybody (F), fond of everyone (F), always smiling and pleasant (F), can't refuse to cooperate (F), wants everyone's love (F), obedient (F), sometimes disrespectful (T), self-punishing (F), uncritical of others (F), humble (F), plays it safe (F), businesslike (F), flattering (F), forthright and critical (T), forgives anything (F).

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*The direction of response, which is for high-scorers on the scales, appears in parentheses after the adjectives (Reversing the response gives the direction for low-scorers).

Average Woman: sometimes disrespectful (T), encouraging others (F), obedient (F), unselfish (F), gives freely (F), good leader (F), self-confident (F), guiding (F), stern but fair (F), gentle and reassuring (F), straightforward and direct (F), always smiling and pleasant (F), self-reliant and assertive (F), shrewd and practical (F), big-hearted (F).

Ideal Man: likes everybody (F), always smiling and pleasant (F), fond of everyone (F), uncritical of others (F), sometimes disrespectful (T), obedient (F), plays it safe (F), critical of others (T), can't refuse to cooperate (F), self-punishing (F), skeptical (T), outspoken (T), wants everyone's love (F), businesslike (F), blunt (T).

Impulse Expression (IE)

Self: obedient (F), sometimes disrespectful (T), skeptical (T), sarcastic (T), frequently disappointed (T), resentful (T), occasionally jealous (T), blunt (T), modest (F), outspoken (T), fond of everyone (F), hard boiled when necessary (T), likes everybody (F), wants everyone's love (F), impatient (T).

Ideal Woman: likes everybody (F), occasionally jealous (T), obedient (F), sometimes disrespectful (T), skeptical (T), always smiling and pleasant (F), fond of everyone (F), wants everyone's love (F), businesslike (F).

Average Woman: obedient (F), self-reliant and assertive (F), sometimes disrespectful (T), too easily influenced (T), always smiling and pleasant (F), easily led (T), snobbish (T), unselfish (F).

Ideal Man: always smiling and pleasant (F), likes everybody (F), obedient (F), sometimes disrespectful (T), blunt (T), dominating (T), fond of everyone (F), occasionally jealous (T), skeptical (T), businesslike (F), can't refuse to cooperate (F), plays it safe (F), sarcastic (T), uncritical of others (F), critical of others (T).

Dominance and Confidence (DC)

Self: self-confident (T), lacks self-confidence (F), good leader (T), self-reliant and assertive (T), timid (F), shy (F), asking for help (F), aggressive (T), too easily influenced (F), apologetic (F), makes a good impression (T), managing (T), frequently disappointed (F), touchy and easily hurt (F), usually gives in (F), independent (T).

Ideal Woman: proud (T), aggressive (T), competitive (T)

Average Woman: confiding (T), selfish (F), responsible and dependable (F).

Ideal Man: Businesslike (T), self-satisfied (T), occasionally jealous (T), proud (T).

Social Integration (SI)

Self: frequently disappointed (F), lacks self-confidence (F), self-reliant and assertive (T), blunt (F), self-confident (T), irritable (F), skeptical (F), suspicious (F), too easily influenced (F), shy (F), resentful (F), easily fooled (F), unselfish (T), impatient (F), gloomy (F), likes everybody (T).

Ideal Woman: sometimes disrespectful (F), likes everybody (T), occasionally jealous (F), asking for help (F).

Average Woman: modest (T), frequently disappointed (F), obedient (T), fond of everyone (T), skeptical (F), always smiling and pleasant (T), selfish (F), impatient (F), likes everybody (T).

Ideal Man: blunt (F), sometimes disrespectful (F), businesslike (T), always smiling and pleasant (T).

Repression and Suppression (RS)

Self: frequently disappointed (F), touchy and easily hurt (F), suspicious (F), irritable (F), stubborn (F), unselfish (T), easily fooled (F), shy (F), critical of others (F), sarcastic (F), lacks self-confidence (F), resentful (F), impatient (F), blunt (F), skeptical (F).

Ideal Woman: skeptical (F), occasionally jealous (F).

Average Woman: suspicious (F), frequently disappointed (F), modest (T), dominating (F), easily fooled (F), resentful (F), shrewd and practical (F), irritable (F), complaining (F).

Ideal Man: blunt (F), forthright and critical (F), stubborn (F), dominating (F), sarcastic (F), sometimes disrespectful (F).

Masculine Role (MF)

Self: touchy and easily hurt (F), forthright and critical (T), wants everyone's love (F), blunt (T), easily led (F), lacks self-confidence (F), has childlike trust (F), aggressive (T), tender and soft-hearted (F), timid (F), independent (T), straightforward and direct (T), confiding (F), hardboiled when necessary (T), stubborn (T).

Ideal Woman: skeptical (T), resents being bossed (T), proud (T), hardboiled when necessary (T).

Average Woman: firm but just (F), easily led (T), straightforward and direct (F), too easily influenced (T).

Ideal Man: fond of everyone (F), uncritical of others (F), cool and calculating (T), occasionally jealous (T), obedient (F).

The preceding results represent, of course, only a start in ascertaining the meaning of subjects' high or low scores on scales. Interpretations of findings will therefore be left to the reader. It is planned to investigate further the validity of individual scales, in relation to external criteria whenever possible, and to study the personality characteristics of subjects with various kinds of score profiles. An important project to be reported later, will consist of the same kinds of adjective studies as those reported above, except that high and low scores after correction for RS will be the focus of attention; this should shed light on the meaning and utility of the RS correction.

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Addendum

We wish to call readers' attention to a valuable intensive study of personality and student development carried out at Princeton University. Dr. S. Roy Heath, Jr., Director of the University Counseling Center at the University of Pittsburgh, reported on some longitudinal findings concerning a sample of Princeton undergraduates to the Student Affairs Seminar, which met at the University of Pittsburgh on May 10, 1957. Dr. Heath's paper, 'Personality and Student Development: Some Research Findings of the Princeton Advisee Project,' is largely concerned with two personality dimensions which are similar in many respects to the Social Maturity (*SM*) and the Impulse Expression (*IE*) scales discussed in this Manual. Dr. Heath's findings, which preceded ours, are based upon numerous interviews of a sample of 36 undergraduate male subjects, upon subjects' group discussions, and upon ratings made by trained observers. By comparison, the work at Vassar has concerned women subjects, and it has depended more upon large sample personality test data, less upon interviews. Any congruence of findings in these two different independent studies of the sexes would therefore seem especially interesting. For example, the agreement on the nature of the *SM* and *IE* dimensions is probably important.

A comparison of the two studies raises two general questions for further investigation. The first and more difficult question concerns the *sufficiency for indicating genuine maturity* either of classification as an integrated 'type A' persons in Dr. Heath's study, or as a high scorer on *SM* in the present study (see p.14). The problem of finding conditions for a high degree of maturity which are both necessary and sufficient is not likely, in our present state of knowledge, to be an easy one to investigate; perhaps it has no 'solution,' in the usual meaning of this word. The second question raised by a comparison of the two studies concerns changes during college as measured by Dr. Heath's second dimension, Impulse Control. There may be a true sex difference here, for only one of his subjects changed enough during the college years (in the direction of the lessening of control over impulse) to be reclassified, while it is regularly the case at Vassar that seniors have higher mean scores on Impulse Expression (*IE*) than do entering freshmen.

We next wish to refer readers to two relevant and interesting papers by Dr. Paul.L. Dressel, Director of Evaluation Services at Michigan State University. The first, 'Interests—Stable or Unstable,' appearing in the *Journal of Educational Research* for 1954, pages 95-102, discusses the 'tendency toward persistence' of interest test patterns within the personality over long periods of time. Dr. Dressel points out that the moderate test-retest coefficients obtained in longitudinal studies using interest inventories could be attributable mainly to item content which is unrelated to the actual experiences of the subjects. This is also an important possibility to be borne in mind in interpreting responses to some of the items appearing in the present *Inventory*. On the other hand many items of the attitude variety which are concerned with *general* human experiences and needs may not be susceptible to this particular kind of comparatively irrelevant test-retest stability.

Dr. Dressel's second paper, 'Development of a Test of Uniqueness,' appearing in *Educational and Psychological Measurement*, 1957, pages 43-54, is concerned with problems such as those arising in the test design of *VC Figure Preference Test*. It is likely that the solution of such unique-response problems in test construction will lead to use of more efficient mental testing instruments.

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